

5. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen (DO), ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs or if less than 90 percent of the control fish survive, the bioassay tests shall be restarted with new batches of fish, and bioassay tests shall continue back to back until compliance is demonstrated.

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

- a. *Sampling.* The Discharger shall collect 24-hour composite samples of the effluent at the compliance point station specified in a table above, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.
- b. *Test Species.* The test species shall be *Mysidopsis bahia*. The Executive Officer may change to another test species if data suggest that another test species is more sensitive to the discharge.
- c. *Methodology.* Sample collection, handling, and preservation shall be in accordance with U.S. EPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms," currently third edition (EPA-821-R-02-014), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- d. *Dilution Series.* The Discharger shall conduct tests at 100%, 50%, 25%, 10%, and 5%. The "%" represents percent effluent as discharged.

2. Chronic Toxicity Reporting Requirements

- a. *Routine Reporting.* Toxicity test results for the current reporting period shall include, at a minimum, for each test:
 - i. Sample date(s)
 - ii. Test initiation date
 - iii. Test species
 - iv. End point values for each dilution (e.g., number of young, growth rate, percent survival)
 - v. NOEC value(s) in percent effluent

- vi. IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) as percent effluent
- vii. Chronic toxicity unit (TUc) values (100/NOEC, 100/IC25, or 100/EC25)
- viii. Mean percent mortality (\pm s.d.) after 96 hours in 100% effluent (if applicable)
- ix. NOEC and LOEC values for reference toxicant test(s)
- x. IC50 or EC50 value(s) for reference toxicant test(s)
- xi. Available water quality measurements for each test (pH, DO, temperature, conductivity, hardness, salinity, ammonia)

- b. *Compliance Summary.* The chronic toxicity testing results shall be provided in the self-monitoring report. The results shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include items listed above under 2.a, specifically item numbers i, iii, v, vi (IC25 or EC25), vii, and viii.

3. Chronic Toxicity Reduction Evaluation (TRE)

- a. *Prepare Generic TRE Work Plan.* To be ready to respond to toxicity events, the Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.
- b. *Submit Specific TRE Work Plan.* Within 30 days of exceeding either trigger for accelerated monitoring, the Discharge shall submit to the Regional Water Board a TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.
- c. *Initiate TRE.* Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.
- d. The TRE shall be specific to the discharge and be prepared in accordance with current technical guidance and reference materials, including U.S. EPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:
 - i. Tier 1 consists of basic data collection (routine and accelerated monitoring).
 - ii. Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
 - iii. Tier 3 consists of a TIE.
 - iv. Tier 4 consists of evaluation of options for additional effluent treatment processes.

- v. Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
- vi. Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
- e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of Section IV.A.4 of this Order).
- f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.
- g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.
- h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
- i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

Not applicable.

VII. RECLAMATION MONITORING REQUIREMENTS

Not Applicable.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Regional Monitoring Program

- 1. The Discharger shall continue to participate in the Regional Monitoring Program (RMP), which involves collection of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Discharger's participation and support of the RMP is used in consideration of the level of receiving water monitoring required by this Order.
- 2. With each annual self-monitoring report, the Discharger shall document how it complies with Receiving Water Limitations V.A. This may include using discharge characteristics

(e.g., mass balance with effluent data and closest RMP station), receiving water data, or a combination of both.

IX. LEGEND FOR MRP TABLES

Types of Samples

- C-24 = composite sample, 24 hours
(includes continuous sampling, such as for flows)
C-X = composite sample, X hours
G = grab sample

Frequency of Sampling

- Cont. = continuous
Cont/D = continuous monitoring & daily reporting
H = once each hour (at about hourly intervals)
W = once each week
2/W = twice each week
3/W = three times each week
4/W = four times each week
M = once each month
Q = once each calendar quarter (at about three month intervals)
1/2h = once every 2 hours
1/Y = once each calendar year
2/Y = twice each calendar year (at about 6 months intervals, once during dry season, once during wet season)

Parameter and Unit Abbreviations

- CBOD₅ = five-day carbonaceous biochemical oxygen demand
DO = dissolved oxygen
Est V = estimated volume (gallons)
Metals = multiple metals; see SMP Section VI.G.
PAHs = polycyclic aromatic hydrocarbons; see SMP Section VI.H.
TSS = total suspended solids
mgd = million gallons per day
mg/L = milligrams per liter
ml/L-hr = milliliters per liter, per hour
µg/L = micrograms per liter
kg/d = kilograms per day
kg/mo = kilograms per month
MPN/100 ml = most probable number per 100 milliliters

X. OTHER MONITORING REQUIREMENTS

A. Pretreatment Requirements

The Discharger shall comply with the pretreatment requirements specified in Table E-5 for influent (INF-001), effluent (EFF-001), and biosolids.

Table E-5. Pretreatment Monitoring Requirements ⁽¹⁾

Constituents/EPA Method	Influent (INF-001)	Effluent (EFF-001)	Biosolids
VOCs / 624 ⁽²⁾	2/Y	2/Y	2/Y
BNA / 625 ⁽³⁾	2/Y	2/Y	2/Y
Metals ⁽⁴⁾	M	M	2/Y

⁽¹⁾ Influent and effluent monitoring conducted in accordance with tables E-3 and E-4 can be used to satisfy these pretreatment monitoring requirements.

⁽²⁾ Volatile organic compounds.

⁽³⁾ Base, neutral, acid extractable compounds.

⁽⁴⁾ Analyses for metals shall include arsenic, cadmium, selenium, copper, lead, mercury, nickel, silver, zinc, and total chromium.

B. Biosolids Monitoring

The Discharger shall adhere to sludge monitoring requirements required by 40 CFR, Part 503.

XI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

B. Modifications to Part A of Self-Monitoring Program (Attachment G)

1. If any discrepancies exist between SMP Part A, August 1993 (Attachment G) and this MRP, this MRP prevails.
2. Sections C.3 and C.5 are satisfied by participation in the Regional Monitoring Program.
3. Amend Section E as Follows:

Records to be Maintained

Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements, including monitoring and reporting requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. These records shall be retained by the Discharger for a minimum of 3 years. This minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of the U.S. EPA, Region IX.

Records to be maintained shall include the following:

1. Parameter Sampling and Analyses, and Observations

For each sample, analysis, or observation conducted, records shall include the following:

- a. *Parameter.*

b. Identity of sampling and observation stations, consistent with the station descriptions given in the MPR (Attachment E).

c. Date and time of sampling and/or observations.

d. Method of sampling (e.g., grab, composite, or other method).

e. Date and time analyses are started and completed, and name of personnel or contract laboratory performing the analyses.

f. Reference or description of procedure(s) and analytical method(s) used.

g. Analytical method detection limits and related quantification parameters.

h. Results of the analyses and/or observations.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

a. Total flow or volume, for each day.

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested biosolids) for each calendar month.

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume and/or mass quantification of dewatered biosolids for each calendar month.

2) Solids content of the dewatered biosolids.

3) Final disposition of dewatered biosolids (point of disposal location and disposal method).

4. Disinfection Process

For the disinfection process, records shall be maintained documenting process operation and performance, including the following:

For bacteriological analyses:

- 1) Date and time of each sample collected.*
- 2) Wastewater flow rate at the time of sample collection.*
- 3) Results of sample analyses (e.g., bacterial count).*
- 4) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in waste discharge requirements).*

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

- a. Identification of the treatment process bypassed.*
- b. Date(s) and times of bypass beginning and end.*
- c. Total bypass duration.*
- d. Estimated total volume.*
- e. Description of, or reference to other report(s) describing, the bypass event, the cause, corrective actions taken, and any additional monitoring conducted.*

4. Modify Section F.1 as follows:

1. Spill of Oil or Other Hazardous Material Reports

- a. A report shall be made of any spill of oil or other hazardous material.*
- b. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or Discharger's knowledge of occurrence. Spills shall be reported by telephone to the Regional Water Board: (510) 622-2369, (510) 622-2460 (FAX), and to the State Office of Emergency Services: (800) 852-7550.*
- c. A written report shall be submitted to the Regional Water Board within five (5) working days following telephone notification, unless directed otherwise by Regional Water Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall include the following:*

[The rest of the section remains unchanged]

5. Modify Section F.2 (first paragraph) as follows:

2. Reports of Plant Bypass, Treatment Unit Bypass and Order Violation

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41 (m)(4) as stated in Standard Provision A.13. In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

[And add at the end of Section F.2 the following:]

The Discharger shall report in monthly and annual monitoring reports the occurrence and duration of blending events, and certify that the blending complied with effluent limits.

6. Modify Section F.4 as follows:

Self-Monitoring Reports

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices.

[And add at the end of Section F.4 the following:]

g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include a formal request to invalidate the measurement; the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion), to prevent recurrence of the sampling or measurement problem. The invalidation of a measurement requires the approval of Water Board staff and will be based solely on the documentation submitted at that time.

h. Reporting Data in Electronic Format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

- 1) Reporting Method: The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS) and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Permit has been modified to include.*
- 2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in SMP Part B), an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4.a-g. above. However, until U.S. EPA approves the electronic signature or other signature*

technologies, Dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.

- 3) *Annual Reporting Requirements: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report shall be submitted according to Section F.5 below.*

7. Add at the end of Section F.5, Annual Reporting, the following:

d. A plan view drawing or map showing the Discharger's facility, flow routing and sampling and observation station locations.

C. Self Monitoring Reports (SMRs)

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs, except as described in Section XI.B above. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through V. The Discharger shall submit monthly and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; annual reports shall be due on February 1 following each calendar year.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period
Continuous	Day after permit effective date	All
Hourly	Day after permit effective date	Hourly
Daily	Day after permit effective date	Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month

Sampling Frequency	Monitoring Period Begins On	Monitoring Period
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31
Annually	January 1 following (or on) permit effective date	January 1 through December 31
Per Discharge Event	Anytime during the discharge event or as soon as possible after aware of the event	At a time when sampling can characterize the discharge event

4. Reporting Protocols. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may include numerical estimates of the data quality for the reported result if such information is available. Numerical estimates of data quality may be percent accuracy (+/- a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
 - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. The Discharger shall submit SMRs in accordance with the following requirements:
- a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to illustrate clearly whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format

within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

- b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements (WDRs); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
- c. SMRs must be submitted to the Regional Water Board signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: NPDES Permit Division

D. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this Order, the State or Regional Water Board may notify the Discharger to submit SMRs electronically that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to one of the addresses listed below:

Standard Mail	FedEx/UPS/Other Private Carriers
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official U.S. EPA pre-printed DMR forms (EPA Form 3320-1). Self-generated forms will not be accepted unless they follow the exact same format of EPA Form 3320-1.

E. Other Reports

1. Annually, with the first monthly SMR following the respective due dates, the Discharger shall report the results of any special studies, monitoring, and reporting required by section VII.C.2 (Special Studies, Technical Reports, and Additional Monitoring Requirements) of this Order.

**APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS**

I. Definition of Terms

- A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25} . If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.
- C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

- A. The Discharger shall perform screening phase monitoring:
 - 1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or
 - 2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
 - 1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables, or as approved by the Executive Officer.
 - 2. Two stages:

- a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).
 - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.
3. Appropriate controls.
 4. Concurrent reference toxicant tests.
 5. Dilution series 100%, 50%, 25%, 10%, 5%, 0 %, where "%" is percent effluent as discharged, or as otherwise approved the Executive Officer.
- C. The Discharger shall submit a screening phase proposal acceptable to the Executive Officer. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharge shall commence with screening phase monitoring.

APPENDIX E-2 SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	<i>(Skeletonema costatum)</i> <i>(Thalassiosira pseudonana)</i>	Growth rate	4 days	1
Red alga	<i>(Champia parvula)</i>	Number of cystocarps	7-9 days	3
Giant kelp	<i>(Macrocystis pyrifera)</i>	Percent germination; germ tube length	48 hours	2
Abalone	<i>(Haliotis rufescens)</i>	Abnormal shell development	48 hours	2
Oyster Mussel	<i>(Crassostrea gigas)</i> <i>(Mytilus edulis)</i>	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	<i>(Strongylocentrotus purpuratus,</i> <i>S. franciscanus)</i> <i>(Dendraster excentricus)</i>	Percent fertilization	1 hour	2
Shrimp	<i>(Mysidopsis bahia)</i>	Percent survival; growth	7 days	3
Shrimp	<i>(Holmesimysis costata)</i>	Percent survival; growth	7 days	2
Topsmelt	<i>(Atherinops affinis)</i>	Percent survival; growth	7 days	2
Silversides	<i>(Menidia beryllina)</i>	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	<i>(Pimephales promelas)</i>	Survival; growth rate	7 days	4
Water flea	<i>(Ceriodaphnia dubia)</i>	Survival; number of young	7 days	4
Alga	<i>(Selenastrum capricornutum)</i>	Cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay ^[2]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater ^[1] Marine/Estuarine	0	1 or 2	3
	4	3 or 4	0
Total number of tests	4	5	3

[1] The freshwater species may be substituted with marine species if:

- (a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or
- (b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

- [2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.
- (b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

ATTACHMENT F – FACT SHEET**Table of Contents**

I.	Permit Information.....	F-3
II.	Facility Description.....	F-4
	A. Description of Wastewater Treatment or Controls.....	F-4
	B. Discharge Points and Receiving Waters	F-5
	C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data	F-5
	D. Compliance Summary	F-7
	E. Planned Changes	F-8
III.	Applicable Plans, Policies, and Regulations.....	F-8
	A. Legal Authorities.....	F-8
	B. California Environmental Quality Act (CEQA).....	F-8
	C. State and Federal Regulations, Policies, and Plans	F-8
	D. Impaired Water Bodies on CWA 303(d) List	F-11
	E. Other Plans, Policies and Regulations.....	F-12
IV.	Rationale For Effluent Limitations and Discharge Specifications	F-12
	A. Discharge Prohibitions	F-13
	B. Technology-Based Effluent Limitations	F-15
	1. Scope and Authority	F-15
	2. Applicable Technology-Based Effluent Limitations.....	F-15
	3. Bacteria.....	F-16
	C. Water Quality-Based Effluent Limitations.....	F-17
	1. Scope and Authority.....	F-17
	2. Applicable Beneficial Uses and Water Quality Criteria and Objectives.....	F-18
	3. Determining the Need for WQBELs.....	F-20
	4. WQBEL Calculations.....	F-25
	5. Whole Effluent Acute Toxicity	F-36
	D. Final Effluent Limitations	F-37
	E. Land Discharge Specifications.....	F-40
	F. Reclamation Specifications.....	F-40
V.	Rationale for Receiving Water Limitations.....	F-40
VI.	Rationale for Monitoring and Reporting Requirements.....	F-40
	A. Influent Monitoring	F-41
	B. Effluent Monitoring.....	F-41
	C. Whole Effluent Toxicity Testing Requirements	F-41
	D. Receiving Water Monitoring.....	F-42
	E. Other Monitoring Requirements	F-42
VII.	Rationale for Provisions.....	F-42
	A. Standard Provisions (Provision VI.A).....	F-42
	B. Monitoring and Reporting Requirements (Provision VI.B).....	F-42
	C. Special Provisions (Provision VI.C)	F-43
	1. Reopener Provisions.....	F-43
	2. Special Studies and Additional Monitoring Requirements	F-43
	3. Best Management Practices and Pollution Minimization Program.....	F-44
	4. Construction, Operation, and Maintenance Specifications	F-44
	5. Special Provisions for Municipal Facilities (POTWs Only).....	F-44

6. Corrective Measures to Minimize Blending Events:	F-44
7. Dioxin-TEQ Compliance Schedule	F-44
8. Action Plan for Cyanide	F-45
9. Action Plan for Copper	F-46
VIII. Public Participation	F-46
A. Notification of Interested Parties	F-46
B. Written Comments	F-46
C. Public Hearing	F-46
D. Waste Discharge Requirements Petitions	F-47
E. Information and Copying	F-47
F. Register of Interested Persons	F-47
G. Additional Information	F-47

List of Tables

Table F-1. Facility Information	F-3
Table F-2. Outfall Location	F-5
Table F-3a. Effluent Limitations (Order No. 01-071) and Monitoring Data for Conventional and Non-Conventional Pollutants between May 1 and September 30 (Dry Season)	F-5
Table F-3b. Effluent Limitations (Order No. 01-171) and Monitoring Data for Conventional and Non-Conventional Pollutants between October 1 and April 30 (Wet Season)	F-6
Table F-4. Effluent Limitations (Order No. 01-171) and Monitoring Data for Toxic Pollutants	F-6
Table F-5. Numeric Effluent Exceedances	F-7
Table F-6. Basin Plan Beneficial Uses	F-9
Table F-7. Secondary Treatment Requirements	F-15
Table F-8. Summary of Technology-Based Effluent Limitations	F-16
Table F-9. Translators for Copper and Nickel for Deepwater Discharges of North of Dumbarton Bridge (Central Bay Regions)	F-20
Table F-10. Summary of RPA Results	F-22
Table F-11. Effluent Limitations for Copper	F-28
Table F-12. Effluent Limitations for Mercury	F-29
Table F-13. Effluent Limitations for Nickel	F-30
Table F-14. Effluent Limit Calculations	F-34
Table F-15. Summary of Technology-Based Effluent Limitations between May 1 st and September 30 th	F-37
Table F-16. Summary of Technology-Based Effluent Limitations between October 1 st and April 30 th	F-37
Table F-17. Summary of Effluent Limitations for Toxic Pollutants	F-38

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 417035001
Discharger	City of San Mateo
Name of Facility	City of San Mateo Wastewater Treatment Plant
Facility Address	2050 Detroit Drive
	San Mateo, CA 94404
	San Mateo County
Facility Contact, Title, Phone	Wastewater Treatment Plant – Mark Von Aspern, Plant Manager, (650) 522-7385
	Collection System – Darla Reams, Deputy Directory/Chief Engineer (650) 522-7304
	Pretreatment and Stormwater – Vern Bessey, Environmental Compliance Program Manager, (650) 522-7342
Authorized Person to Sign and Submit Reports	Darla Reams, Deputy Director of Public Works (650) 522-7304
Mailing Address	330 West 20 th Avenue San Mateo, CA 94403
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	No
Facility Permitted Flow	15.7 million gallons per day (mgd) average dry weather flow
Facility Design Flow	15.7 mgd (current dry weather average design flow)
	40 mgd (design wet weather peak flow)
Watershed	San Francisco Bay
Receiving Water	Lower San Francisco Bay
Receiving Water Type	Marine

- A. The City of San Mateo is the owner and operator of the City of San Mateo Wastewater Treatment Plant (San Mateo WWTP).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B. The facility discharges treated wastewater into the deep-water channel of Lower San Francisco Bay, a water of the United States, and is currently regulated by Order No. 01-071 and National Pollution Discharge Elimination System (NPDES) Permit CA0037541, adopted on May 31, 2001.
- C. The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and NPDES permit on November 22, 2005.
- D. The terms and conditions of the current Order have been automatically continued past the Order's original expiration date of May 31, 2006. They remain in effect until new WDRs and a new NPDES permit are adopted pursuant to this Order.

II. FACILITY DESCRIPTION

A. Description of Wastewater Treatment or Controls

The Discharger owns and operates the San Mateo WWTP, a secondary and advanced secondary wastewater treatment plant, and its collection system. The San Mateo WWTP transports and treats domestic, commercial, and industrial wastewater from a service area with a population of approximately 137,000. The following municipalities and counties contribute to influent flows to the San Mateo WWTP: City of San Mateo (population 94,000), City of Foster City (30,000), City of Hillsborough (6,500), City of Belmont (400); and San Mateo County (5,600).

Treated wastewater is discharged into Lower San Francisco Bay, a water of the State and United States, from Discharge Point 001 through a submerged diffuser approximately 3,700 feet offshore and 500 feet north of the San Mateo-Hayward Bridge. The diffuser is approximately 41 feet below the water surface. A second outfall, to Seal Slough, is available to the Discharger; however, this discharge point is designated by the Discharger for emergency use only and is not an authorized point of discharge to waters of the State or the United States.

The Discharger presently discharges an average year-round flow of approximately 13.0 mgd, an average dry weather flow of 11.7 mgd, and an average wet weather flow of 13.9 mgd from its treatment plant. The treatment plant has a current dry weather design capacity of 15.7 mgd and a peak wet weather flow capacity of approximately 40 mgd. During high wet weather flows, a portion of the primary effluent may be routed around biological treatment to the disinfection facility, providing for blending of primary and secondary effluent during wet weather periods when the secondary capacity is exceeded. The Discharger currently provides secondary treatment of flows up to 40 mgd and advanced-secondary treatment (filtration) as needed to comply with effluent and receiving water limitations in this Order. Treatment facilities consist of four primary clarifiers, five aeration basins and secondary clarifiers, six mixed media (carbon, gravel, and sand) pressure filters for advanced secondary treatment, two chlorine-contact chambers, and dechlorination with sodium bisulfite.

Most storm water captured within the wastewater treatment plant's storm drain system is directed to the headworks of the treatment plant and treated to the standards contained in this Order. Some of

the storm water from the facility flows offsite to Seal Slough. This storm water is covered by the Statewide Industrial Storm Water Permit (NPDES General Permit CAS000001).

In May 2005, construction began for modifications to the solids handling facilities, including a second anaerobic digester and centrifuges. Modifications also include elimination of the Zimpro low-pressure oxidation system and vacuum filters. The planned completion date for these modifications is April 2008.

The Discharger's wastewater collection system includes approximately 257 miles of sanitary sewer lines (gravity lines and force mains) and 23 pump stations.

B. Discharge Points and Receiving Waters

The location of the San Mateo WWTP outfall and its receiving water are shown in Table F-2 below.

Table F-2. Outfall Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	POTW Effluent	37°, 34', 50" N	122°, 14', 45" W	Lower San Francisco Bay

Lower San Francisco Bay is located in the South Bay Basin watershed management area, between the Dumbarton Bridge and the San Francisco-Oakland Bay Bridge.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order No. 01-071 for discharges to Lower San Francisco Bay and representative monitoring data from the term of Order No. 01-071 are as follows:

Table F-3a. Effluent Limitations (Order No. 01-071) and Monitoring Data for Conventional and Non-Conventional Pollutants between May 1 and September 30 (Dry Season)

Parameter	Units	Effluent Limitations			Monitoring Data (From 5/02 To 9/06)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
Oil and Grease	mg/L	10	---	20	(5)	(5)	(5)
pH	standard units	6.0 – 9.0	6.0 – 9.0	6.0 – 9.0	7.2	NA	7.4
TSS	mg/L	20	30	40	13	36	69
Acute Toxicity	% survival	(1)	(1)	(1)	Lowest 11-sample 90 percentile: 95% Survival Lowest 11-sample Median: 100% Survival		
CBOD ₅	mg/L	15	25	35	10	16	21
Fecal Coliform	MPN/ 100 mL	(2)	(2)	(2)	64	NA	170
Chlorine, Total Residual	mg/L	---	---	0.0 ⁽⁴⁾	0.4	NA	0.4
Chronic Toxicity	TUc	(3)	(3)	(3)	4.97	NA	18
Settleable Matter	ml/L-hr.	0.1	---	0.2	0.1	NA	0.1
Turbidity	NTU	15	---	30	8.01	NA	21.7

Table F-3b. Effluent Limitations (Order No. 01-171) and Monitoring Data for Conventional and Non-Conventional Pollutants between October 1 and April 30 (Wet Season)

Parameter	Units	Effluent Limitations			Monitoring Data (From 1/02 To 11/06)		
		Monthly Average	Weekly Average	Daily Maximum	Highest Monthly Average	Highest Weekly Average	Highest Daily Discharge
Oil and Grease	mg/L	10	---	20	(5)	(5)	(5)
pH	standard units	---	---	6.0 – 9.0	7.3	NA	7.5
TSS	mg/L	30	45	60	22	45	175
Acute Toxicity	% survival	(1)	(1)	(1)	Lowest 11-sample 90 percentile: 95% Survival Lowest 11-sample Median: 100% Survival		
CBOD ₅	mg/L	25	40	50	14	22	58
Fecal Coliform	MPN/ 100 mL	(2)	(2)	(2)	118	NA	800
Chlorine, Total Residual	mg/L	---	---	0.0 ⁽⁴⁾		NA	
Chronic Toxicity	TUc	(3)	(3)	(3)	1.2	NA	1.7
Settleable Matter	ml/L-hr	0.1	---	0.2	0.1	NA	0.1
Turbidity	NTU	15	---	30	11.21	NA	29.1

CBOD₅ = five-day carbonaceous biological oxygen demand

ND = Non-Detect

NA = Not Applicable

- (1) An 11-sample median value of not less than 90 percent survival and an 11-sample 90th percentile value of not less than 70 percent survival.
- (2) The five day log mean fecal coliform density shall not exceed 200 MPN/100 mL and the 90th percentile fecal coliform value shall not exceed 400 MPN/100 mL.
- (3) A chronic toxicity effluent limit was not included in Order No. 01-071: However, the Order included an accelerated monitoring trigger of a three sample median value of 10 chronic toxicity units (TUc) or a single sample maximum of 20 TUc or greater.
- (4) For total residual chlorine, 0.0 milligrams per liter (mg/L) was established as an instantaneous maximum effluent limitation.
- (5) No data available for this parameter.

Table F-4. Effluent Limitations (Order No. 01-171) and Monitoring Data for Toxic Pollutants

Parameter	Units	Final Limits		Interim Limits		Monitoring Data (From 3/02 To 11/06)
		Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Highest Daily Concentration
Copper	µg/L	---	---	33.1	---	9.3
Mercury	µg/L	---	---	---	0.087 (Oct-Apr) 0.023 (May-Sep)	0.039
Nickel	µg/L	71.1	29.5	---	---	19
Cyanide	µg/L	---	---	10	---	7.8
Lead	µg/L	53	30.7	---	---	0.44
Tributyltin	µg/L	---	---	0.064	---	ND (0.00017) ⁽¹⁾
Zinc	µg/L	580	398	---	---	66

Parameter	Units	Final Limits		Interim Limits		Monitoring Data (From 3/02 To 11/06)
		Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Highest Daily Concentration
Dieldrin	µg/L	0.00028	0.00014	---	---	ND (0.0019) ⁽¹⁾
4,4-DDE	µg/L	0.00118	0.00059	---	---	ND (0.001) ⁽¹⁾
Bis(2-Ethylhexyl)Phthalate	µg/L	---	---	---	21	3 (J qualified) ⁽²⁾

⁽¹⁾ Analyte not detected in effluent. Number in parenthesis is the MDL as reported by the analytical laboratory.

⁽²⁾ J qualified data represent estimated values greater than MDL but less than ML.

D. Compliance Summary

1. **Compliance with Numeric Effluent Limits.** Exceedances of numeric effluent limits were observed during the permit term for total residual chlorine, total suspended solids (TSS), cyanide and five-day carbonaceous biological oxygen demand (CBOD₅). The exceedances are outlined below:

Table F-5. Numeric Effluent Exceedances

Date of Violation	Exceeded Parameter	Units	Effluent Limitation	Reported Concentration
June 5, 2001	Cyanide – Daily Maximum	ug/L	10	15
June 15, 2001	Residual Chlorine – Instantaneous Maximum	mg/L	0.0	0.5
April 2, 2002	Residual Chlorine – Instantaneous Maximum	mg/L	0.0	3.1
June 26, 2002	Residual Chlorine – Instantaneous Maximum	mg/L	0.0	0.4
October 13, 2002	TSS – Daily Maximum (Wet)	mg/L	60	146
October 14, 2002	TSS – Daily Maximum (Wet)	mg/L	60	75
November 8, 2002	TSS – Daily Maximum (Wet)	mg/L	60	61
December 16, 2002	TSS – Daily Maximum (Wet)	mg/L	60	82
December 19, 2002	TSS – Daily Maximum (Wet)	mg/L	60	63
December 28, 2002	TSS – Daily Maximum (Wet)	mg/L	60	175
December 28, 2002	CBOD ₅ – Daily Maximum	mg/L	50	58
January 7, 2003	Residual Chlorine – Instantaneous Maximum	mg/L	0.0	0.4
May 12, 2003	TSS	mg/L	40	46
February 25, 2004	TSS – Daily Maximum (Wet)	mg/L	60	80
April 28, 2005	TSS – Daily Maximum (Wet)	mg/L	60	137
May 12, 2005	TSS – Daily Maximum (Dry)	mg/L	40	69
May 13, 2005	TSS – Daily Maximum (Dry)	mg/L	40	50
May 14, 2005	TSS – Weekly Average (Dry)	mg/L	30	36

Enforcement actions taken during the term of Order No. 01-071 include Order R2-2002-0120, consisting of Mandatory Minimum Penalties (MMPs) totaling \$30,000; Order R2-2003-0040, consisting of MMPs totaling \$21,000; and Order R2-2007-0012, consisting of MMPs totaling \$9,000. The City of San Mateo waived its right to a hearing on Order R2-2007-0012 and agreed to undertake a Supplemental Environmental Project in lieu of the \$9,000 in MMPs.

San Mateo WWTP's violations of the TSS limits are generally attributed to stress on the secondary treatment system (i.e., activated sludge aeration basins and secondary clarifiers) due to high flows (e.g., during wet weather). As discussed in Section VI.C.6 of the Order, Fact Sheet Section II.E

below, and Fact Sheet Section IV.A (Discharge Prohibition III.C), expanding the plant's secondary treatment capacity is anticipated to be part of the required corrective measures to minimize blending events. Expanded secondary treatment capacity should address the TSS violations.

E. Planned Changes

San Mateo WWTP plans to:

1. Modify solids handling facilities, including addition of a second anaerobic digester and centrifuges.
2. Eliminate Zimpro low-pressure oxidation system and vacuum filters.

Both projects are to be completed in 2008. No other significant physical or operational changes are planned for the facility at this time; however, the Discharger is required to implement corrective measures to minimize blending events. The schedule of tasks is provided in Section VI.C.6 of this Order. The first task, to be completed by August 1, 2009, is to develop alternatives to handle increased flows likely to occur after planned collection system improvements are completed. The collection system improvements, listed in the second task, are to be completed between 2010 and 2013. Hydraulic improvements to the outfall and capacity improvements to the treatment plant are to be completed by 2013 (although as noted in Fact Sheet Section IV.A the San Mateo WWTP's Capital Improvement Plan budgets funding for plant capacity expansion from 2010 to 2012).

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by the US Environmental Protection Agency (U.S. EPA) and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Basin* (the Basin Plan) is the California Regional Water Quality Control Board, San Francisco Bay Region's master water quality control planning document. It designates beneficial uses and water quality objectives (WQOs) for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve WQOs. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board, the Office of Administrative Law, and the U.S. EPA,

where required. The Basin Plan implements State Water Resources Control Board (State Water Board) Resolution 88-63, which establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on receiving waters of San Francisco Bay, total dissolved solids levels in the Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution 88-63. Therefore, the designation MUN is not applicable to Lower San Francisco Bay. Beneficial uses applicable to Lower San Francisco Bay are as follows:

Table F-6. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Lower San Francisco Bay	Industrial Service Supply (IND) Navigation (NAV) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Ocean, Commercial and Sport Fishing (COMM) Wildlife Habitat (WILD) Preservation of Rare and Endangered Species (RARE) Fish Migration (MIGR) Shellfish Harvesting (SHELL) Estuarine Habitat (EST)

Requirements of this Order implement the Basin Plan.

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains WQOs for coastal and interstate surface waters as well as enclosed bays and estuaries. Requirements of this Order implement the Thermal Plan.
3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria (WQC) for priority toxic pollutants, which are applicable to Lower San Francisco Bay.
4. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority

pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

5. **Alaska Rule.** On March 30, 2000, U.S. EPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes [40 CFR § 131.21, 65 Fed. Reg. 24641 (April 27, 2000)]. Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to U.S. EPA after May 30, 2000, must be approved by U.S. EPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to U.S. EPA by May 30, 2000, may be used for CWA purposes, whether or not approved by U.S. EPA.
6. **Antidegradation Policy.** 40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

The permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order continues the status quo with respect to the level of discharge authorized in the previous permit and thus there will be no change in water quality beyond the level that was authorized in the last permit. The final limitations in this Order comply with antidegradation requirements and meet the requirements of the SIP because these limits hold the Discharger to performance levels that will neither cause nor contribute to water quality impairment, nor further water quality degradation. This is because this Order does not provide for an increase in the permitted design flow, allow for a reduction in the level of treatment, or increase effluent limitations (with the exception of copper and cyanide).

In the cases of copper and cyanide:

- Alternate effluent limits for copper based on site-specific objectives (SSOs) will be higher than the current interim limits if the SSOs for copper become effective during the permit term.
- The final effluent limits for cyanide, though higher than the interim effluent limit in Order No. 01-071, are lower than those anticipated following approval of the cyanide SSO.

The standards-setting processes for copper and cyanide addressed antidegradation. The copper and cyanide limits in this Order are consistent with the antidegradation analyses prepared for the SSOs, which concluded that water quality would not be degraded. These conclusions were based on assumed implementation of copper and cyanide action plans. Such plans are included in the provisions of this Order (Sections VI.C.8 and 9).

As antidegradation has been addressed, there will be no lowering of water quality beyond the current level authorized in the previous permit, which is the baseline by which to measure whether degradation will occur, and further analysis in this permit is unnecessary. Findings authorizing degradation are thus unnecessary.

7. **Anti-Backsliding Requirements.** CWA Sections 402(o)(2) and 303(d)(4) and NPDES regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as the effluent limitations in the previous permit, unless exceptions allowing limitations to be relaxed are met.

D. Impaired Water Bodies on CWA 303(d) List

In November 2006, the U.S. EPA approved a revised list of impaired water bodies prepared by the State (hereinafter referred to as the 303(d) list). The 303(d) list was prepared pursuant to provisions of CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. Lower San Francisco Bay is listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, polychlorinated biphenyls (PCBs), and dioxin-like PCBs. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be consistent with total maximum daily loads (TMDLs) and associated waste load allocations (WLAs).

1. Total Maximum Daily Loads

The Regional Water Board plans to adopt TMDLs for pollutants on the 303(d) list in Lower San Francisco Bay within the next ten years. Future review of the 303(d) list for Lower San Francisco Bay may provide schedules or result in revision of the schedules for adoption of TMDLs.

2. Waste Load Allocations

The TMDLs will establish WLAs for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the water bodies. Final water quality-based effluent limitations (WQBELs) for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

3. Implementation Strategy

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

- a. **Data Collection.** The Regional Water Board has given dischargers to San Francisco Bay the option to assist collectively in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives/water quality criteria (WQO/WQC). This collective effort may include development of sample concentration techniques for approval by the U.S. EPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited water bodies. The results will be

used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired water bodies including Lower San Francisco Bay.

- b. Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the Regional Monitoring Program (RMP) or other appropriate funding mechanisms.

E. Other Plans, Policies and Regulations

This Order is also based on the following plans, policies, and regulations:

1. The Federal *Water Pollution Control Act*, Sections 301 through 305, and 307, and amendments thereto, as applicable (CWA);
2. The State Water Board's March 2, 2000, *Policy for the U.S. EPA's May 18, 2000, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* or CTR, 40 CFR §131.38(b) and amendments;
3. The U.S. EPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986] and subsequent amendments (the U.S. EPA Gold Book);
4. Applicable Federal Regulations [40 CFR §§ 122 and 131];
5. 40 CFR §131.36(b) and amendments [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];
6. U.S. EPA's December 10, 1998 National Recommended Water Quality Criteria compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];
7. U.S. EPA's December 27, 2002 Revision of National Recommended Water Quality Criteria compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and
8. Guidance provided with State Water Board Orders remanding permits to the Regional Water Board for further consideration.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the NPDES regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative WQC to protect the beneficial uses of the receiving water. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs may be established:

- using U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information;
- on an indicator parameter for the pollutant of concern; or
- using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

Several specific factors affecting the development of limitations and requirements in this Order are discussed as follows.

A. Discharge Prohibitions

1. **Discharge Prohibitions III.A (No discharge other than that described in this Order):** This prohibition is the same as in the Order No. 01-071 and is based on CWC section 13260, which requires filing a Report of Waste Discharge (ROWD) before discharges can occur. Discharges not described in the ROWD, and subsequently in this Order, are prohibited.
2. **Discharge Prohibitions III.B (No discharge receiving less than 10:1 dilution):** This prohibition is the same as in the Order No. 01-071 and is based on Discharge Prohibition 1 from Table 4-1 of the Basin Plan, which prohibits discharges that do not receive a minimum 10:1 initial dilution. Further, this Order allows a 10:1 dilution credit in the calculation of some WQBELs, and these limits would not be protective of water quality if the discharge did not actually achieve a 10:1 minimum initial dilution.
3. **Discharge Prohibition III.C (No bypass or overflow of untreated or partially treated wastewaters):** This prohibition is based on the NPDES regulations expressed at 40 CFR 122.41(m)(4)(i)(A)-(C). This prohibition grants bypass of peak wet weather flows above 40 mgd that are recombined with secondary treatment flows and discharged at the combined outfall 001.

Background

During significant storm events, high flows can overwhelm certain parts of the wastewater treatment process and may cause damage or failure of the system. Operators of wastewater treatment plants must manage these high flows to both ensure the continued operation of the treatment process and to prevent backups and overflows of raw wastewater in basements or on city streets. U.S. EPA recognizes that peak wet weather flow diversions around secondary treatment units at POTW treatment plants serving separate sanitary sewer conveyance systems may be necessary in some circumstances.

In December 2005, U.S. EPA invited public comment on its proposed Peak Wet Weather Policy that provides interpretation that 40 CFR 122.41(m) applies to wet weather diversions that are recombined with flow from secondary treatment. The draft Peak Wet Weather Policy provides guidance by which its NPDES permit may be approved by the Regional Water Board. It calls on dischargers to meet all the requirements of their NPDES permits, and encourages municipalities to make investments in ongoing maintenance and capital improvements to improve their systems' long-term performance.

Criteria of 40 CFR 122.41(m)(4)(i)(A)-(C)

If the criteria of 40 CFR 122.41(m)(4)(i)(A)-(C) are met, the Regional Water Board can approve peak wet weather diversions that are recombined with flow from the secondary treatment. The criteria of 40 CFR 122.41(m)(4)(i) (Federal Standard Provisions, Attachment D) are:

(A) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(B) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime; and

(C) the Discharger submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

No Feasible Alternatives Analysis

On March 30, 2007, the Discharger submitted a no feasible alternatives analysis that addresses measures it has taken and plans to take to reduce and eliminate bypasses during peak wet weather events so that such bypasses could be approved pursuant to 40 CFR 122.41(m)(4). For the calendar years 2003-2006, the inflow to the plant has been managed to eliminate the need for bypassing of secondary treatment; however, this is only accomplished by restricting the inflow, thus surcharging the collection system and resulting in sanitary sewer overflows. The frequency of blending events expected to occur in any one particular year is unpredictable due to the inability to forecast rainfall and the severity of storm events. However, based on modest population growth and collection system improvements that will direct wet weather flow to the treatment plant, it is anticipated that flows to the treatment plant will exceed the secondary treatment capacity of the plant in the future. The Discharger has proposed the following actions:

- Capacity evaluation of the collection system and the resultant anticipated flows to the treatment plant, and evaluation of alternatives for handling increased flows.
- Collection system improvements, including sewer rehabilitation and relief sewer projects. Collection system improvements are funded through 2013, conditional on passage of scheduled rate increases.
- Implementation of hydraulic improvements at the outfall that are recommended during the capacity evaluation.
- Increased treatment plant capacity, as recommended during the capacity evaluation.

This work will be part of the Discharger's 20-year Capital Improvement Plan, which includes budget to expand treatment capacity (\$10,000,000 over two years from 2010 to 2012) and to construct hydraulic improvements at the outfall (\$10,000,000 over two years from 2010 to 2012).

The Discharger has satisfied the criteria of 40 CFR 122.41(m)(4)(i)(A-C). Bypasses are necessary to prevent severe property damage when flow exceeds the capacity of the

secondary treatment. The Discharger has analyzed alternatives to bypassing and has determined that no feasible alternative exists at this time other than their current practice of restricting inflow to the treatment plant (at the expense of sanitary sewer overflows). The Discharger has also determined that even with this inflow restriction, inflow to the treatment plant will exceed secondary treatment capacity in the future. However, when the measures proposed above are implemented, the likelihood of bypasses will be reduced. The Discharger has submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

4. **Discharge Prohibition III.D (average dry weather flow not to exceed dry weather design capacity):** This prohibition is based on the design treatment capacity of the wastewater treatment facility. Exceedance of the treatment plant's average dry weather design capacity of 15.7 mgd may result in lowering the reliability of achieving compliance with water quality requirements.
5. **Discharge Prohibition III.E (No sanitary sewer overflows to waters of the United States).** Discharge Prohibition 15 from Table 4-1 of the Basin Plan and the CWA prohibit the discharge of wastewater to surface waters except as authorized under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards. [33 U.S.C. §1311(b)(1)(B and C)]. Therefore, a sanitary sewer overflow that results in the discharge of raw sewage, or sewage not meeting secondary treatment requirements, to surface waters is prohibited under the CWA and the Basin Plan.

B. Technology-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b)(1)(B) requires U.S. EPA to develop secondary treatment standards for publicly owned wastewater treatment facilities – the level of effluent quality attainable through application of secondary or equivalent treatment. U.S. EPA promulgated such technology-based effluent guidelines for POTWs at 40 CFR 133. These Secondary Treatment Regulations include the following minimum requirements for POTWs, which are applicable to discharges from the San Mateo WWTP.

Table F-7. Secondary Treatment Requirements

	30-Day Average	7-Day Average
BOD ₅ ⁽¹⁾	30 mg/L	45 mg/L
CBOD ₅ ⁽¹⁾	25 mg/L ⁽²⁾	40 mg/L
TSS ⁽¹⁾	30 mg/L	45 mg/L
pH	6.0 – 9.0	

⁽¹⁾ The 30 day average percent removal shall not be less than 85 percent.

⁽²⁾ At the option of the permitting authority, these effluent limitations for CBOD₅ may be substituted for limitations for BOD₅.

2. Applicable Technology-Based Effluent Limitations

This Order retains the following technology based effluent limitations, applicable to Discharge Point 001, as measured at EFF-001, from Order No. 01-071.

Table F-8. Summary of Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
CBOD ₅	mg/L	15 / 25 ⁽¹⁾	25 / 40 ⁽¹⁾		---	---
TSS	mg/L	20 / 30 ⁽¹⁾	30 / 45 ⁽¹⁾		---	---
Oil and Grease	mg/L	10	---	20	---	---
pH	s.u.	---	---	---	6.0	9.0

⁽¹⁾ The first limitation is applicable May 1 – September 30, and the second limitation is applicable October 1 – April 30.

The technology-based limits on CBOD₅ and TSS are retained from Order No. 01-071. As these limits are the same as from Order No. 01-071, consistent with the anti-backsliding provisions of the CWA, they are no more stringent than required by the CWA. The maximum daily limitations (MDELs) for CBOD₅ and TSS are not retained from Order No. 01-071. 40 CFR 122.45(d)(2) specifies that discharge limitations for POTWs shall be stated as average weekly limitations and average monthly limitations, unless impracticable.

The limitations established for oil and grease are levels attainable by secondary treatment and are required by the Basin Plan (Table 4-2) for all discharges to inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region.

The pH limitation is retained from Order No. 01-071 and is required by U.S. EPA's Secondary Treatment Regulation at 40 CFR 133 and by the Basin Plan (Table 4-2) for deep-water discharges.

The technology based effluent limitations for settleable matter are not retained from Order No. 01-071. The Regional Water Board has determined that compliance with the Secondary Treatment Regulation at 40 CFR 133, and with the Basin Plan requirements (Table 4-2) for all discharges to inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, will assure removal of settleable solids to acceptably low levels (below 0.1 milliliters per liter per hour [ml/L/hr] [30 day average] and 0.2 ml/L/hr [daily maximum]).

3. Bacteria

- a. **Fecal Coliform.** Table 4-2 of the Basin Plan establishes effluent limitations for total coliform bacteria for all discharges from sewage treatment facilities to inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region. Fecal coliform limitations may be substituted for the limitations of the Basin Plan "provided it can be conclusively demonstrated through a program approved by the Regional Water Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving water." In January 1997, the Discharger initiated a study to measure the effect of reduced chlorine residual on fecal coliform detections in its effluent, and in offshore and shoreline receiving waters. The Discharger submitted study results in January 1998 concluding there was no discernable relationship between the Discharger's effluent fecal coliform levels and receiving water fecal coliform levels. The Regional Water Board subsequently established limitations for fecal, instead of total, coliform

bacteria in Order No. 98-089 for the San Mateo WWTP. These limitations for fecal coliform bacteria were retained in Order No. 01-071 and are retained by this Order.

- b. **Enterococci.** This Order establishes a technology-based effluent limitation for enterococci bacteria. This limitation is based on the enterococci concentration currently economically and technologically achievable by six other POTWs in the San Francisco Bay Region. This limitation is also consistent with the requirements of the Basin Plan at Table 4-2, footnote d, and with the BEACH Act of 2004 [40CFR 133.41(e)(1)]. This effluent limitation will ensure that there are no "unacceptable adverse impacts on the beneficial uses" of lower San Francisco Bay.

Enterococci are more closely associated with gastrointestinal disease contracted by water contact than are fecal coliform bacteria. U.S. EPA established bacteriological criteria for water contact recreation in coastal waters, including coastal estuaries such as San Francisco Bay, pursuant to the BEACH Act on November 16, 2004 (Federal Register, Volume 69, No. 220.) This Order's effluent limitation on enterococci, a geometric mean of 35 MPN/100 mL, is equivalent to the BEACH Act's saltwater bacteriological criterion for water contact recreation.

Bacteria concentrations in POTW effluent are primarily a function of disinfectant application, so the Discharger can meet this limitation with its existing technology. Because this technology-based limitation does not account for dilution in the receiving waters (dilution cannot be calculated because the background enterococci levels are unknown), it is likely to be conservative in terms of protecting beneficial uses, and therefore consistent with Basin Plan Table 4-2, footnote d.

Although U.S. EPA also established single sample maximum criteria for enterococci bacteria, this Order implements only the geometric mean criterion of 35 MPN/100 mL. When these criteria were promulgated, U.S. EPA expected that the single sample maximum values would be used for making beach notification and beach closure decisions. "Other than in the beach notification and closure decision context, the geometric mean is the more relevant value for assuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation..." [Federal Register, Volume 69, No 220.]

C. Water Quality-Based Effluent Limitations

1. Scope and Authority

- a. NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard (Reasonable Potential). The process for determining Reasonable Potential and calculating WQBELs, when necessary, is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable WQOs and WQC that are contained in the CTR, NTR, Basin Plan, other State plans and policies.
- b. NPDES regulations and the SIP provide the basis to establish MDELs.

(1) **NPDES Regulations.** NPDES regulations at 40 CFR Part 122.45(d) state: "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

(2) **SIP.** The SIP (page 8, Section 1.4) requires WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs).

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan; the CTR, established by U.S. EPA at 40 CFR 131.38; and the NTR, established by U.S. EPA at 40 CFR 131.36. Some pollutants have WQOs/WQC established by more than one of these three sources.

- a. **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The narrative toxicity water quality objective states in part, "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The narrative bioaccumulation water quality objective states in part, "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed, based on available information, to implement these objectives.
- b. **CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, although Tables 3-3 and 3-4 of the Basin Plan include numeric objectives for certain of these priority toxic pollutants that supersede criteria of the CTR (except in the South Bay south of the Dumbarton Bridge).
- c. **NTR.** The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Delta. These criteria of the NTR are applicable to Lower San Francisco Bay, the receiving water for this Discharger.
- d. **Water Quality-Based Toxics Controls.** Where numeric objectives have not been established or updated in the Basin Plan, NPDES regulations at 40 CFR Part 122.44(d) require that WQBELs be established based on U.S. EPA criteria, supplemented where

necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses.

To determine the need for WQBELs and to establish them when necessary, the Regional Water Board staff has followed the requirements of applicable NPDES regulations, including 40 CFR Parts 122 and 131, as well as guidance and requirements established by:

- the Basin Plan;
 - U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and
 - the State Water Resources Control Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the SIP, 2005).
- e. **Basin Plan Receiving Water Salinity Policy.** The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance.
- The receiving water for this discharger, Lower San Francisco Bay, is a saltwater environment based on salinity data generated through the San Francisco Estuary Institute's RMP at the Redwood Creek (BA40) and San Bruno Shoal (BB15) sampling stations between 1993 and 2001. In that period, the receiving water's minimum salinity was 11 ppt, its maximum salinity was 31 ppt, and its average salinity was 23 ppt. As salinity was greater than 10 ppt in 100 percent of receiving water samples, the saltwater criteria from the Basin Plan, NTR, and CTR are applicable to this discharge.
- f. **Site-Specific Metals Translators.** Because NPDES regulations at 40 CFR 122.45(c) require effluent limitations for metals to be expressed as total recoverable metal, and applicable WQC for the metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, U.S. EPA establishes default translators that are used in NPDES permitting activities; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly impact the form of metal (dissolved, filterable, or otherwise) that is present and therefore available in the water to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing excessively stringent or under protective WQOs.

For deep-water discharges to South San Francisco Bay, Regional Water Board staff use the following translators for copper and nickel, based on recommendations of the Clean Estuary Partnership's (CEP's) *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (March 2005a). In determining the need for and calculating WQBELs for all other metals, the Regional Water Board staff has used default translators established by U.S. EPA in the CTR at 40 CFR 131.38(b)(2), Table 2.

Table F-9. Translators for Copper and Nickel for Deepwater Discharges of North of Dumbarton Bridge (Central Bay Regions)

Cu and Ni Translators for Deepwater Discharges to Lower San Francisco Bay	Copper		Nickel	
	AMEL Translator	MDEL Translator	AMEL Translator	MDEL Translator
	0.74	0.88	0.65	0.85

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for all pollutants (non-priority or priority) that:

...the Director determines are or may be discharged at a level which (1) will cause, (2) will have the reasonable potential to cause, or (3) will contribute to an excursion above any narrative or numeric criteria within a State water quality standard.

(i.e., will have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, the receiving water's designated uses, and/or Order No. 01-071 pollutant limitations to determine Reasonable Potential. For priority pollutants, Regional Water Board staff used the method prescribed in Section 1.3 of the SIP to determine if the discharge from the San Mateo WWTP demonstrates reasonable potential as described below in sections 3.c–3.e.

a. Reasonable Potential Analysis (RPA)

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from the San Mateo WWTP demonstrates Reasonable Potential. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the U.S. EPA, the NTR, and the CTR. The Basin Plan objectives and CTR criteria are shown in Appendix A of this Fact Sheet.

b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable WQC. Appendix A of this Fact Sheet shows the stepwise process described in Section 1.3 of the SIP.

The RPA projects a maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

- (1) The first trigger is activated if the MEC is greater than the lowest applicable WQC ($MEC \geq WQC$), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQC, then that pollutant has reasonable potential and a WQBEL is required.
- (2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQC ($B > WQC$) and the pollutant is detected in any of the effluent samples.
- (3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQC. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001, letter to all permittees titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (the August 6, 2001 Letter), formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue monitoring for the priority pollutants using analytical methods providing the best detection limits reasonably feasible. (The August 6, 2001 Letter is available online; see Standard Language and Other References Available Online, below.) Regional Water Board staff analyzed effluent data and the nature of the San Mateo WWTP to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from December 2003 through November 2006 for most inorganic pollutants, and from March 2002 through September 2006 for most organic pollutants.

d. Ambient Background Data

Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations are used for calculating WQBELs. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data from the RMP were used as background data in performing the RPA for this Discharger.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the Regional Water Board's August 6, 2001 Letter. The August 6, 2001 Letter formally required Dischargers (pursuant to Section 13267 of the CWC) to

conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region Dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station. The Dischargers may utilize the receiving water study provided by BACWA to fulfill all requirements of the August 6, 2001 Letter for receiving water monitoring in this Order.

e. RPA Determination

The MECs, most stringent applicable WQOs/WQC, and background concentrations used in the RPA are presented in the following table, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable potential was not determined for all pollutants, as there are not applicable WQOs/WQC for all pollutants, and monitoring data were not available for others. RPA results are shown below. The pollutants that exhibit Reasonable Potential are copper, mercury, nickel, cyanide, dioxin-TEQ, and ammonia.

Table F-10. Summary of RPA Results

CTR #	Priority Pollutants	MEC or Minimum DL ^{(a)(b)} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{(a)(b)} (µg/L)	RPA Results ^(c)
1	Antimony	1.0	4300	1.8	No
2	Arsenic	3.7	36	2.46	No
3	Beryllium	< 0.06	No Criteria	0.215	Ud
4	Cadmium	0.5	9.4	0.13	No
5a	Chromium (III)	Not Available	No Criteria	Not Available	Ud
5b	Chromium (VI)	2.0	50	4.4	No
6	Copper	9.3	4.2	2.55	Yes
7	Lead	0.44	8.5	0.80	No
8	Mercury (303d listed)	0.039	0.025	0.0086	Yes
9	Nickel	19	12.6	3.7	Yes
10	Selenium	3	5	0.39	No
11	Silver	0.3	2.2	0.052	No
12	Thallium	0.1	6.3	0.21	No
13	Zinc	66	86	5.1	No
14	Cyanide	7.8	1.0	< 0.4	Yes
15	Asbestos	Not Available	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD (303d listed)	< 4.54E-07	1.4E-08	Not Available	No
16-TEQ	Dioxin TEQ (303d listed) ^(d)	1.93E-09	1.4E-08	7.10E-08	Yes
17	Acrolein	< 0.5	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	0.03	No
19	Benzene	< 0.03	71	< 0.05	No
20	Bromoform	0.49	360	< 0.5	No
21	Carbon Tetrachloride	< 0.04	4.4	0.06	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No

CTR #	Priority Pollutants	MEC or Minimum DL ^{(a)(b)} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{(a)(b)} (µg/L)	RPA Results ^(c)
23	Chlorodibromomethane	2.6	34	< 0.05	No
24	Chloroethane	< 0.03	No Criteria	< 0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	4.2	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	2.7	46	< 0.05	No
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	Ud
29	1,2-Dichloroethane	< 0.04	99	0.04	No
30	1,1-Dichloroethylene	< 0.06	3.2	< 0.5	No
31	1,2-Dichloropropane	< 0.03	39	< 0.05	No
32	1,3-Dichloropropylene	< 0.03	1700	Not Available	No
33	Ethylbenzene	< 0.04	29000	< 0.5	No
34	Methyl Bromide	< 0.05	4000	< 0.5	No
35	Methyl Chloride	0.1	No Criteria	< 0.5	Ud
36	Methylene Chloride	2.3	1600	0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	0.4	8.9	< 0.05	No
39	Toluene	0.7	200000	< 0.3	No
40	1,2-Trans-Dichloroethylene	< 0.05	140000	< 0.5	No
41	1,1,1-Trichloroethane	< 0.03	No Criteria	< 0.5	Ud
42	1,1,2-Trichloroethane	< 0.05	42	< 0.05	No
43	Trichloroethylene	< 0.05	81	< 0.5	No
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	2-Chlorophenol	< 0.4	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.3	790	< 1.3	No
47	2,4-Dimethylphenol	< 0.3	2300	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	< 0.4	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.3	14000	< 0.7	No
50	2-Nitrophenol	< 0.3	No Criteria	< 1.3	Ud
51	4-Nitrophenol	< 0.2	No Criteria	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	< 0.3	No Criteria	< 1.1	Ud
53	Pentachlorophenol	< 0.4	7.9	< 1.0	No
54	Phenol	Not Available	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.2	6.5	< 1.3	No
56	Acenaphthene	< 0.17	2700	0.0015	No
57	Acenaphthylene	< 0.03	No Criteria	0.00053	Ud
58	Anthracene	< 0.16	110000	0.0005	No
59	Benzidine	< 0.3	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.12	0.049	0.0053	No
61	Benzo(a)Pyrene	< 0.09	0.049	0.00029	No
62	Benzo(b)Fluoranthene	< 0.11	0.049	0.0046	No
63	Benzo(ghi)Perylene	< 0.06	No Criteria	0.0027	Ud
64	Benzo(k)Fluoranthene	< 0.16	0.049	0.0015	No
65	Bis(2-Chloroethoxy)Methane	< 0.3	No Criteria	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	< 0.3	1.4	< 0.3	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	3	5.9	< 0.5	No
69	4-Bromophenyl Phenyl Ether	< 0.4	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	< 0.4	5200	< 0.52	No
71	2-Chloronaphthalene	< 0.3	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.4	No Criteria	< 0.3	Ud
73	Chrysene	< 0.14	0.049	0.0024	No
74	Dibenzo(a,h)Anthracene	< 0.04	0.049	0.00064	No
75	1,2-Dichlorobenzene	< 0.05	17000	< 0.8	No
76	1,3-Dichlorobenzene	< 0.03	2600	< 0.8	No

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
77	1,4-Dichlorobenzene	0.7	2600	< 0.8	No
78	3,3 Dichlorobenzidine	< 0.3	0.077	< 0.001	No
79	Diethyl Phthalate	< 0.4	120000	< 0.24	No
80	Dimethyl Phthalate	< 0.4	2900000	< 0.24	No
81	Di-n-Butyl Phthalate	< 0.4	12000	< 0.5	No
82	2,4-Dinitrotoluene	< 0.3	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.3	No Criteria	< 0.29	Ud
84	Di-n-Octyl Phthalate	< 0.4	No Criteria	< 0.38	Ud
85	1,2-Diphenylhydrazine	< 0.3	0.54	0.0037	No
86	Fluoranthene	< 0.03	370	0.011	No
87	Fluorene	< 0.02	14000	0.00208	No
88	Hexachlorobenzene	< 0.4	0.00077	0.0000202	No
89	Hexachlorobutadiene	< 0.2	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.1	17000	< 0.31	No
91	Hexachloroethane	< 0.2	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.04	0.049	0.004	No
93	Isophorone	< 0.3	600	< 0.3	No
94	Naphthalene	< 0.05	No Criteria	0.0023	Ud
95	Nitrobenzene	< 0.3	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.4	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.3	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.4	16	< 0.001	No
99	Phenanthrene	< 0.03	No Criteria	0.0061	Ud
100	Pyrene	< 0.03	11000	0.0051	No
101	1,2,4-Trichlorobenzene	< 0.3	No Criteria	< 0.3	Ud
102	Aldrin	< 0.002	0.00014	Not Available	No
103	alpha-BHC	< 0.002	0.013	0.000496	No
104	beta-BHC	< 0.001	0.046	0.000413	No
105	gamma-BHC	< 0.001	0.063	0.0007034	No
106	delta-BHC	< 0.001	No Criteria	0.000042	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.00018	No
108	4,4'-DDT (303d listed)	< 0.001	0.00059	0.000066	No
109	4,4'-DDE (linked to DDT)	< 0.001	0.00059	0.000693	No
110	4,4'-DDD	< 0.001	0.00084	0.000313	No
111	Dieldrin (303d listed)	< 0.0019	0.00014	0.000264	No
112	alpha-Endosulfan	< 0.0019	0.0087	0.000031	No
113	beta-Endosulfan	< 0.001	0.0087	0.000069	No
114	Endosulfan Sulfate	< 0.001	240	0.0000819	No
115	Endrin	< 0.0019	0.0023	0.000036	No
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.0028	0.00021	0.000019	No
118	Heptachlor Epoxide	< 0.0019	0.00011	0.00002458	No
119-125	PCBs sum (303d listed)	< 0.32	0.00017	Not Available	No
126	Toxaphene	< 0.14	0.00020	Not Available	No
	Tributyltin	0.0017	0.01	< 0.001	No
	Total PAHs	Not Available	15	0.26	No
	Total Ammonia (as N)	34,700	940 ^[d]	190	Yes

[a] The MEC or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level.

[b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[c] RPA Results = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated;

- [d] Reasonable potential is found for Dioxin-TEQ because the background concentration exceeds the WQO and dioxin-TEQ is present in the Discharger's effluent.
- [e] The Total Ammonia WQO is the most stringent of the acute or chronic un-ionized ammonia water quality objectives from the Basin Plan translated into total ammonia based on ambient receiving water conditions.

(1) **Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

(2) **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

4. WQBEL Calculations.

a. Pollutants with Reasonable Potential

WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with reasonable potential are discussed below.

b. Dilution Credit

The SIP provides the basis for any dilution credit. The San Mateo outfall is designed to achieve a minimum initial dilution of 10:1. Based on review of RMP monitoring data for San Francisco Bay, there is variability in the receiving water, and the hydrology of the receiving water is, itself, very complex. Therefore, there is uncertainty regarding the representative nature of ambient background data, which are used for determination of effluent limitations. Pursuant to section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis..." The detailed basis for each credit is explained below.

(1) For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The CWA 303(d) list was updated and approved by the Regional Water Board on October 25, 2006. For Lower San Francisco Bay, the Regional Water Board placed mercury and polychlorinated biphenyls (PCBs) on the 303(d) list. The U.S. EPA added dioxin and furan compounds, chlordane, dieldrin, and 4,4'-DDT to the CWA Section 303(d) list. The reasoning for these decisions is based on the

following factors that suggest there is no more assimilative capacity in San Francisco Bay for these pollutants.

Tissue samples taken from fish in San Francisco Bay show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay, 1997, May 1999*, San Francisco Estuary Institute). The results of the 1994 San Francisco Bay pilot study, presented in *Contaminant Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994), also showed elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment (OEHHA) completed a preliminary review of data in the 1994 report, and subsequently issued an interim consumption advisory covering certain fish species in San Francisco Bay in December 1994. This advisory is still in effect for exposure to sport fish contaminated with mercury, dioxins, and pesticides (e.g., DDT).

Section 2.1.1 of the SIP states that for bioaccumulative compounds on the 303(d) list, the Regional Water Board should consider whether mass loading should be limited to current levels. The Regional Water Board finds that mass-loading limits are warranted for mercury for the receiving waters of this Discharger. This is to ensure that this Discharger does not contribute further to impairment of the narrative water quality objective for bioaccumulation.

- (2) For non-bioaccumulative constituents (except ammonia and cyanide), a conservative allowance of 10:1 dilution for discharges to San Francisco Bay has been assigned for protection of beneficial uses. The 10:1 dilution allowance was granted in Order No. 01-071. It is based on the Basin Plan's Prohibition 1, which prohibits discharges with less than 10:1 dilution. Limiting the dilution credit is based on SIP provisions in Section 1.4.2. The dilution credit is also based on SIP section 1.4.2, which considers the following:

- (a) A far-field background station is appropriate because the receiving water body (San Francisco Bay) is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. The SIP allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a water-body-by-water-body basis due to inherent uncertainties in characterizing ambient background conditions in a complex estuarine system on a discharge-by-discharge basis.

The Yerba Buena Island RMP monitoring station, relative to other RMP stations, fits the guidance criteria of the SIP for establishing background conditions. The SIP requires that background water-quality data be representative of the ambient receiving water that will mix with the discharge. Regional Water Board staff believes that water quality data from the Yerba Buena Island monitoring station is representative of the water that will mix with discharges from the San Mateo WWTP.

- (b) Because of the complex hydrology of San Francisco Bay, a mixing zone has not been established. There are uncertainties in accurately determining the mixing

zones for each discharge. The models that have been used to predict dilution have not considered the three dimensional nature of currents San Francisco Bay estuary currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean water enters San Francisco Bay on twice day tidal cycles, generally beneath the warmer fresh water, which flows seaward during wet seasons. When these waters mix and interact, complex circulation patterns occur due to varying densities of the fresh and ocean waters. The complex patterns occur throughout San Francisco Bay estuary but are most prevalent in the San Pablo Bay, Carquinez Strait, and Suisun Bay areas. The locations of this mixing and interaction change depending on the strength of each tide and rate of delta outflow. Additionally, sediment loads to San Francisco Bay from the Central Valley change on a longer-term basis, affecting the depth of different parts of San Francisco Bay and resulting in alteration of flow patterns and mixing and dilution that is achieved at an outfall.

- (3) For ammonia, a non-persistent pollutant; a conservative estimated actual initial dilution was used to calculate the effluent limitations. This is justified because ammonia, a non-persistent pollutant, is quickly dispersed and degraded to a non-toxic state, and cumulative toxicity effects are unlikely. The estimated actual initial dilution was calculated using the EPA-supported modeling package Visual PLUMES. Model results were reported in a technical memorandum prepared by LimnoTech, Inc., titled *Dilution Modeling Results for San Mateo Wastewater Treatment Plant Discharge to San Francisco Bay* (July 31, 2007). The results were estimated actual initial dilution ratios of 74:1 ($D = 73$) at the annual average flow rate of 13 MGD, and 33:1 ($D = 32$) at the peak flow rate of 40 MGD. The 74:1 dilution ratio is appropriate for calculating limits based on the chronic criterion because that criterion is an annual mean; the dilution ratio at the annual average flow rate is thus the most representative of actual conditions. The 33:1 dilution ratio is appropriate to use for calculating limits based on the acute criterion because that criterion has no averaging period; the dilution at the worst-case maximum flow rate is thus the most representative of actual conditions. Both dilution ratios were calculated assuming slack tide conditions.
- (4) For cyanide, a non-persistent pollutant that quickly disperses and degrades like ammonia, a dilution ratio of 33:1 (or $D = 32$) was used to calculate the water quality based effluent limits. Whereas "full" dilution of 74:1 was granted for the chronic ammonia calculation, less dilution is granted for cyanide because SIP Section 1.4.2.2 dictates that mixing zones be as small as practicable. In addition, the acute and chronic cyanide criteria are both shorter term than the chronic criterion for ammonia (1-hour and 4-day versus an annual median). Limiting dilution is equivalent to decreasing the size of the allowed mixing zone.

d. Calculation of Pollutant Specific WQBELs

The calculation of pollutant specific WQBELs is detailed below.

(1) Copper

- (a) *Copper WQC.* The acute and chronic marine aquatic life WQC for copper from the Basin Plan and the CTR are 4.8 and 3.1 micrograms per liter ($\mu\text{g/L}$), respectively, as dissolved metal. The WQC for San Mateo WWTP's discharge were calculated by applying the site-specific translators of 0.88 (acute) and 0.74 (chronic) to the acute and chronic Basin Plan and CTR criteria above. CEP's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (March 2005a) recommends these site-specific translators. The resulting acute and chronic criteria for copper for the San Mateo WWTP are 5.5 $\mu\text{g/L}$ and 4.2 $\mu\text{g/L}$, respectively. These values were used to perform the RPA.
- (b) *RPA Results.* This Order establishes effluent limitations for copper because the observed MEC of 9.3 $\mu\text{g/L}$ exceeds the applicable WQC for this pollutant, demonstrating Reasonable Potential by Trigger 1.
- (c) *Copper WQBELs.* WQBELs are calculated based on the WQC of the CTR, and site-specific WQOs recommended by the CEP's *North of Dumbarton Bridge Copper and Nickel Site-Specific Objective (SSO) Derivation* (March 2005b). Both sets of criteria are expressed as total recoverable metal using site-specific translators recommended by CEP March 2005a and the water effects ratio (WER) of 2.4 recommended by CEP March 2005b. The following table compares effluent limitations for copper calculated according to SIP procedures (using a coefficient of variation of 0.20 based on the mean and standard deviation of the effluent data set) and the two sets of criteria described above. The newly calculated limitations take into account the deep-water nature of the discharge. They are therefore in accordance with the Basin Plan's required minimum initial dilution of 10 to 1.

Table F-11. Effluent Limitations for Copper

Effluent Limitations for Copper		
	AMEL	MDEL
Based on CTR Criteria	72 $\mu\text{g/L}$	96 $\mu\text{g/L}$
Based on SSOs	54 $\mu\text{g/L}$	72 $\mu\text{g/L}$

- (d) *Immediate Compliance Feasible.* Statistical analysis of effluent data for copper shows that the 95th percentile of the effluent data set (7.9 $\mu\text{g/L}$) is less than the AMEL (72 $\mu\text{g/L}$); the 99th percentile (9.0 $\mu\text{g/L}$) is less than the MDEL (96 $\mu\text{g/L}$); and the mean (5.8 $\mu\text{g/L}$) is less than the long-term average of the projected normal distribution of the effluent data set after accounting for effluent variability (62 $\mu\text{g/L}$). Therefore, immediate compliance with final effluent limitations for copper is feasible.
- (e) *Alternate Limitations for Copper.* As described in CEP March 2005b, the Regional Water Board is proposing to develop SSOs for copper in non-ocean, marine waters of the San Francisco Bay Region. The proposed SSOs for copper are 2.5 $\mu\text{g/L}$ and 3.9 $\mu\text{g/L}$ as four-day and one-hour average (i.e., chronic and acute) criteria, respectively. If the SSOs for copper are adopted, final effluent

limitations, calculated according to Section 1.4 of the SIP using a WER of 2.4, would be 54 µg/L (AMEL) and 72 µg/L (MDEL); and these alternative effluent limits would become effective upon the adoption date, so long as the SSOs and their current justification remained unchanged.

- (e) *Antibacksliding*. Antibacksliding requirements are satisfied because Order No. 01-071 did not include final effluent limitations for copper.

(2) Mercury

- (a) *Mercury WQC*. The most stringent applicable WQC for mercury are established by the Basin Plan for protection of saltwater aquatic life, 2.1 µg/L and 0.025 µg/L, acute and chronic criteria respectively.
- (b) *RPA Results*. This Order establishes effluent limitations for mercury, as the observed MEC of 0.039 µg/L exceeds the applicable chronic criterion for this pollutant, demonstrating reasonable potential by Trigger 1.
- (c) *Mercury WQBELs*. Final WQBELs for mercury were calculated according to SIP procedures using a CV of 0.69 based on the mean and standard deviation of the effluent data set. Because mercury is a bioaccumulative pollutant, final effluent limitations were calculated without credit for dilution.

Table F-12. Effluent Limitations for Mercury

Effluent Limitations for Mercury		
	AMEL	MDEL
New Limits	0.020 µg/L	0.043 µg/L

- (d) *Immediate Compliance Infeasible*. Statistical analysis of effluent data for mercury shows that the 95th percentile of the effluent data set (0.026 µg/L) is greater than the AMEL (0.020 µg/L); the 99th percentile (0.041 µg/L) is less than the MDEL (0.043 µg/L); and the mean (0.010 µg/L) is less than the long-term average of the projected normal distribution of the effluent data set after accounting for effluent variability (0.012 µg/L). The Regional Water Board concludes based on the comparison of the 95th percentile concentration to the AMEL that immediate compliance with final effluent limitations for mercury is infeasible.
- (e) *Antibacksliding*. Antibacksliding requirements are satisfied because Order No. 01-071 did not include final, concentration-based effluent limitations for mercury; the previous mass-based limitation of 0.15 kg/month is retained by this Order.

(3) Nickel

- (a) The acute and chronic marine aquatic life WQC for nickel from the Basin Plan and the CTR are 74 µg/L and 8.2 µg/L, respectively, as dissolved metal. The WQC for San Mateo WWTP's discharge were calculated by applying the site-specific translators of 0.85 (acute) and 0.65 (chronic), recommended by CEP.

March 2005a, to the acute and chronic Basin Plan and CTR criteria above. The resulting acute and chronic criteria for nickel are 87 µg/L and 13 µg/L, respectively. These values were used to perform the RPA.

- (b) *RPA Results.* This Order establishes effluent limitations for nickel because the observed MEC of 19 µg/L exceeds the applicable chronic criterion for this pollutant, demonstrating Reasonable Potential by Trigger 1.
- (c) *Nickel WQBELs.* WQBELs for nickel are calculated based on WQC of the CTR and are expressed as total recoverable metal, using site-specific translators recommended by CEP March 2005a. The following table compares final effluent limitations for nickel from Order No. 01-071 with limitations calculated according to SIP procedures (using a coefficient of variation of 0.62 based on the mean and standard deviation of the effluent data set). The newly calculated limitations take into account the deep-water nature of the discharge. They are therefore in accordance with the Basin Plan's required minimum initial dilution of 10 to 1.

Table F-13. Effluent Limitations for Nickel

Effluent Limitations for Nickel		
	AMEL	MDEL
Order No. 01-071	29.5 µg/L	71.1 µg/L
Newly Calculated Limitations	75 µg/L	150 µg/L

Because limitations of the Order No. 01-071 were final limitations, and those limitations are more stringent than newly calculated limits for nickel, final effluent limitations for nickel from Order No. 01-071 are retained in this Order.

- (d) *Antibacksliding.* Antibacksliding requirements are satisfied as the more stringent final effluent limitations for nickel are retained from the Order No. 01-071.

(4) Cyanide

- (a) *Cyanide WQC.* The most stringent applicable WQC for cyanide are established by the NTR for protection of aquatic life in San Francisco Bay. The NTR establishes both the saltwater Criterion Maximum Concentration (acute criterion) and the Criterion Chronic Concentration (chronic criterion) at 1.0 µg/L.
- (b) *RPA Results.* This Order establishes effluent limitations for cyanide because the MEC of 7.8 µg/L exceeds the governing WQC of 1 µg/L, demonstrating Reasonable Potential by Trigger 1.
- (c) *Cyanide WQBELs.* For cyanide, a non-persistent pollutant that quickly disperses and degrades (similar to ammonia), a dilution ratio of 33:1 (or $D = 32$) was used to calculate the WQBELs. This is the worst-case initial dilution calculated in the Discharger's dilution study. Final WQBELs for cyanide, calculated according to SIP procedures using a CV of 0.42 based on the mean and standard deviation of the effluent data set, are an MDEL of 20 µg/L and an AMEL of 12 µg/L.

- (d) *Immediate Compliance Feasible.* Statistical analysis of effluent data for cyanide shows that the 95th percentile of the effluent data set (6.7 µg/L) is less than the AMEL (12 µg/L); the 99th percentile (9 µg/L) is less than the MDEL (20 µg/L); and the mean (1.2 µg/L) is less than the long-term average of the projected normal distribution of the effluent data set after accounting for effluent variability (8.6 µg/L). Therefore, immediate compliance with final effluent limitations for cyanide is feasible.
- (e) *Alternative Limit for Cyanide.* As described in the Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay, dated December 4, 2006, the Regional Water Board has developed site-specific criteria for cyanide. In the Basin Plan amendment approved by the Regional Water Board, the proposed site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on these assumptions, a dilution ratio of 10:1, and the Discharger's current cyanide data (coefficient of variation = 0.42), final WQBELs for cyanide will be 38 µg/L as a MDEL, and 22 µg/L as an AMEL. These alternative limits will become effective only if the SSOs adopted for cyanide and approved by the State Water Board and U.S. EPA are the same as in the Basin Plan Amendment approved by the Regional Water Board on December 13, 2006.
- (f) *Antibacksliding.* Antibacksliding requirements are satisfied because Order No. 01-071 did not include final effluent limitations for cyanide. If the alternate effluent limits come into effect, antibacksliding requirements will be satisfied because (1) the alternate effluent limits are based on new information, (2) water quality standards for cyanide in San Francisco Bay are attained, and (3) the alternate effluent limits comply with antidegradation requirements.
- (5) Dioxin-TEQ
- (a) *WQC.* The most stringent applicable water quality criterion for dioxin-TEQ is 1.4×10^{-8} µg/L, which is translated from the narrative bioaccumulation WQO established by the Regional Water Board through the Basin Plan. The Basin Plan's narrative bioaccumulation WQO is applicable to dioxins and furans, since these constituents accumulate in sediments and bioaccumulate in the fatty tissue of fish and other organisms. The narrative bioaccumulation WQO is translated into a numeric objective expressed in 2,3,7,8-TCDD equivalents (or dioxin-TEQ) based on the CTR criterion for 2,3,7,8-TCDD and the application of the Toxic Equivalence Factors (TEFs) for dioxins and furans adopted by the World Health Organization in 1998. By adopting a dioxin-TEQ WQBEL, the Regional Water Board is complying with regulations implementing the Clean Water Act at 40 CFR 122.44 (d), which requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard.
- (b) *RPA Results.* Because the receiving water is currently listed on the CWA 303(d) list as impaired due to dioxins and furans; the maximum observed ambient background

dioxin-TEQ concentration ($7.10 \times 10^{-8} \mu\text{g/L}$) exceeds the translated WQO ($1.40 \times 10^{-8} \mu\text{g/L}$); and the pollutant is detected in the effluent samples, dioxin-TEQ demonstrates Reasonable Potential by Trigger 2 to contribute to exceedances of the narrative bioaccumulation WQO.

- (c) *WQBELs*. Concentration-based WQBELs for dioxin-TEQ, calculated using SIP procedures as guidance, are an MDEL of $2.8 \times 10^{-8} \mu\text{g/L}$ and an AMEL of $1.4 \times 10^{-8} \mu\text{g/L}$. Because dioxin-TEQ is a bioaccumulative pollutant, these limitations are calculated without credit for dilution.
 - (d) *Immediate Compliance Infeasible*. The MEC for dioxin-TEQ ($1.93 \times 10^{-9} \mu\text{g/L}$) is lower than the AMEL ($1.40 \times 10^{-8} \mu\text{g/L}$) and MDEL ($2.81 \times 10^{-8} \mu\text{g/L}$). However, this is based on only six data points, one of which was a non-detect result and five of which were detected but not quantified results, leaving significant uncertainty about the City of San Mateo's ability to comply with the WQBELs. Therefore, immediate compliance with final effluent limitations for dioxin-TEQ may be infeasible.
 - (e) *Antibacksliding*. Antibacksliding requirements are satisfied because Order No. 01-071 did not include effluent limitations for dioxin-TEQ.
- (6) Ammonia

- (a) *Ammonia WQO*. The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median, and 0.40 mg/L as a maximum south of the Golden Gate Channel. Regional Water Board staff translated these WQOs from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available to analyze for un-ionized ammonia; and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objective, Regional Water Board staff used pH, salinity, and temperature data from March 1993 to August 2003 from the nearest RMP station to the outfall (in this case, the San Bruno Shoal RMP station). Regional Water Board staff used the following equations to determine the fraction of discharged total ammonia that would be converted to the toxic un-ionized form in an estuarine receiving water (U.S. EPA, 1989, *Ambient Water Quality Criteria for Ammonia (Saltwater)*—1989, EPA Publication 440/5-88-004):

$$\text{For salinity} > 10 \text{ ppt: fraction of } \text{NH}_3 = \frac{1}{1 + 10^{(pK - pH)}}$$

Where:

$$pK = 9.245 + 0.116(I) + 0.0324(298 - T) + \frac{0.0415(P)}{(T + 273)}$$

$$I = \text{the molal ionic strength of saltwater} = \frac{19.9273(S)}{(1,000 - 1.005109[S])}$$

S = Salinity (parts per thousand)

T = temperature in degrees Celsius

P = Pressure (one atmosphere)

Regional Water Board staff then used the 90th percentile and median un-ionized ammonia fractions to express the acute and chronic un-ionized ammonia WQOs, respectively, as total ammonia concentrations. This approach is consistent with U.S. EPA guidance on translating dissolved metal WQOs to total recoverable metal WQOs (U.S. EPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion*, EPA Publication Number 823-B-96-007). The equivalent total ammonia acute and chronic WQOs calculated for this discharge are 10.8 mg/L and 0.94 mg/L, respectively.

- (b) *RPA Results.* The SIP methodology was used to perform the RPA and to calculate effluent limitations. To set limitations for toxic pollutants (section 4.5.5.2), the Basin Plan indicates that WQBELs shall be calculated according to the SIP. Section 3.3.20 of the Basin Plan refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use SIP methodology to determine and establish effluent limitations for ammonia. This Order establishes effluent limitations for total ammonia because the MEC of 37.4 mg/L exceeds the applicable WQO for this pollutant, demonstrating Reasonable Potential by Trigger 1.
- (c) *WQBELs.* The total ammonia WQBELs calculated according to SIP procedures using a CV of 0.35 based on the mean and standard deviation of the effluent data set are an MDEL of 120 mg/L and an AMEL of 66 mg/L. Regional Water Board staff made statistical adjustments to the WQBEL calculations because:
- the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median instead of they typical 4-day average;
 - the SIP assumes a 4-day average concentration and monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, whereas a 365-day average and a monitoring frequency of 30 days per month, reflecting the actual basis of the WQO and actual sampling frequency, were used here.

These statistical adjustments are supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*; published on December 22, 1999, in the Federal Register.

Following SIP methodology as guidance, Regional Water Board staff used the maximum ambient background total ammonia concentration to calculate effluent limitations based on the acute criterion; and the median background total ammonia concentration to calculate effluent limitations based on the chronic criterion. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration is more representative of ambient conditions than a daily maximum.

The WQBELs were calculated using 74:1 for the chronic criteria and 33:1 for the acute criteria. The most stringent, and therefore governing, calculated WQBELs are based on the chronic criteria. The determination of the dilution ratios is described and explained in Section IV.C.4.b.

- (d) *Immediate Compliance Feasible.* Statistical analysis of effluent data for total ammonia collected over the period of January 2002 through December 2006 shows that the 95th percentile (30 mg/L) is less than the AMEL (66 mg/L); the 99th percentile (32 mg/L) is less than the MDEL (120 mg/L); and the mean (20 mg/L) is less than the long-term average of the projected normal distribution of the effluent data set after accounting for effluent variability (60 mg/L). Therefore, immediate compliance with final effluent limitations for total ammonia is feasible.

e. Effluent Limit Calculations

Table F-14 shows the effluent limit calculations for the priority pollutants with Reasonable Potential.

Table F-14. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper		Mercury	Nickel	Cyanide	Dioxin TEQ	Total Ammonia (Chronic)	Total Ammonia (Acute)
Units	ug/L		ug/L	ug/L	ug/L	ug/L	mg/L	mg/L
Basis and Criteria type	BP & CTR SW Aquatic Life	Alternate limits using SSOs (December 2004)	BP SW Aquatic Life	BP & CTR SW Aquatic Life	NTR Criterion for the Bay	Basin Plan HH	Basin Plan Aq. Life	Basin Plan Aq. Life
CTR Criteria -Acute	5.5	-----	2.1	87	1.0	-----	--	--
CTR Criteria -Chronic	4.2	-----	0.025	13	1.0	-----	--	--
SSO Criteria -Acute	-----	3.9						
SSO Criteria -Chronic	-----	2.5						
Water Effects ratio	2.4	2.4					1	1
Lowest WQO	4.2		0.025	13	1.0	1.40E-08	0.94	10.8
Site Specific Translator - MDEL	0.88	0.88		0.85				
Site Specific Translator - AMEL	0.74	0.74		0.65				
Dilution Factor (D) (if applicable)	9	9	0	9	32	0	73	32
No. of samples per month	4	4	4	4	4	4	30	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	N	Y	Y
HH criteria analysis required? (Y/N)	N	N	Y	N	Y	Y	N	N
Applicable Acute WQO	13.1	11	2.1	87	1			11
Applicable Chronic WQO	10.1	8.1	0.025	13	1		0.94	
HH criteria			0.05		220,000	1.40E-08	0	0
Background (Maximum)	2.55	2.55	0.0086	3.73	0.4	7.10E-08	0.10	0.19

PRIORITY POLLUTANTS	Copper		Mercury	Nickel	Cyanide	Dioxin TEQ	Total Ammonia (Chronic)	Total Ammonia (Acute)
Conc for Aquatic Life calc) ⁽¹⁾								
Background (Average Conc for Human Health calc)			0.0022		0.4	5.00E-08	0.10	0.19
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg)	N	N	Y	N	N	Y	N	N
ECA acute	108	83.4	2.1	837	20.2			350
ECA chronic	77.6	58.1	0.025	92.6	20.2		62	
ECA HH			0.051		7259987	1.40E-08		
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	Y	N	N
Avg of effluent data points	5.8	5.8	0.010	6.1	3.6		20	20
Std Dev of effluent data points	1.2	1.2	0.007	3.8	1.5		6.9	6.9
CV calculated	0.20	0.20	0.69	0.62	0.42	N/A	0.35	0.35
CV (Selected) - Final	0.20	0.20	0.69	0.62	0.42	0.60	0.35	0.35
ECA acute mult99	0.64	0.64	0.28	0.31	0.43			0.48
ECA chronic mult99	0.80	0.80	0.48	0.52	0.63		0.96	
LTA acute	69.33	53.57	0.60	261	8.61			169
LTA chronic	61.77	46.28	0.01	47.89	12.76		60	
minimum of LTAs	61.77	46.28	0.01	47.89	8.61		60	169
AMEL mult95	1.17	1.17	1.64	1.57	1.38	1.55	1.1	1.1
MDEL mult99	1.56	1.56	3.52	3.20	2.35	3.11	2.1	2.1
AMEL (aq life)	72.47	54.30	0.02	75.31	11.84		66	187
MDEL(aq life)	96.18	72.06	0.04	153.5	20.20		124	350
MDEL/AMEL Multiplier	1.33	1.33	2.14	2.04	1.71	2.01	1.9	1.9
AMEL (human hlth)			0.051		7259987	1.4E-08		
MDEL (human hlth)			0.109		12380954	2.81E-08		
minimum of AMEL for Aq. life vs HH	72	54	0.02	75	12	1.4E-08	66	187
minimum of MDEL for Aq. Life vs HH	96	72	0.04	153	20	2.81E-08	124	350
Current limit in permit (30-day average)	-----	-----	0.087 (interim Oct-Apr) 0.023 (interim May-Sep)	29.5	-----	-----	-----	-----
Current limit in permit	33.1	33.1	-----	71.1	10	-----	-----	-----

PRIORITY POLLUTANTS	Copper		Mercury	Nickel	Cyanide	Dioxin TEQ	Total Ammonia (Chronic)	Total Ammonia (Acute)
(daily maximum)	(interim)	(interim)			(interim)			
Final limit - AMEL	72	54	0.020	30	12	1.40E-08	66	187
Final limit - MDEL	96	72	0.043	71	20	2.81E-08	124	350
Max Effl Conc (MEC)	9.3	9.3	0.039	19	7.8	1.93E-09	37	37

5. Whole Effluent Acute Toxicity

- The Basin Plan requires dischargers to either conduct flow-through effluent toxicity tests or perform static renewal bioassays (Chapter 4, Acute Toxicity) to measure the toxicity of wastewaters and to assess negative impacts upon water quality and beneficial uses caused by the aggregate toxic effect of the discharge of pollutants. This Order includes effluent limitations for whole effluent acute toxicity. Compliance evaluation for this Order is based on flow-through whole effluent toxicity tests, performed according to the U.S. EPA-approved method in 40 CFR Part 136 (currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, 5th Edition.")
- Compliance History.* The Discharger's acute toxicity monitoring data show that during 2002-2006 bioassay results ranged from 95% to 100% survival.
- Ammonia Toxicity.* If the Discharger demonstrates to the satisfaction of the Executive Officer that exceedance of the acute toxicity limits is caused by ammonia and that the ammonia in the discharge is not adversely impacting receiving water quality or beneficial uses (i.e., complies with ammonia effluent limits), then such toxicity does not constitute a violation of this effluent limit. This is based on the Basin Plan, at page 3-4 under "Un-Ionized Ammonia." If ammonia toxicity is verified by a Toxicity Identification Evaluation (TIE), the Discharger may utilize an adjustment protocol approved by the Executive Officer for the routine bioassay testing. During the term of Order No. 01-071, the Discharger requested and received authorization from the Executive Officer to adjust the pH of effluent samples prior to running bioassays for acute toxicity.

6. Whole Effluent Chronic Toxicity

- Permit Requirements.* This permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, U.S. EPA and State Water Board Task Force guidance, and Best Professional Judgment. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.
- Chronic Toxicity Triggers.* This Order includes a chronic toxicity trigger of a single sample maximum of 10 TUc.
- Monitoring History.* The Discharger's chronic toxicity monitoring data from 2002 through 2006 include TUc values ranging from 1 to 18 TUc. The 18 TUc result, recorded

in September 2005, was attributed by the laboratory to the presence of unionized ammonia and to relatively low dissolved oxygen levels (4 to 5 mg/L) in the test replicates rather than actual effluent toxicity. The laboratory also noted that there was no clear dose-response relationship due to anomalously high inter-replicate variability in the test replicates (i.e., mortality in some cases was much higher in lower-strength test dilutions than in higher-strength ones). Accelerated monitoring was not performed because this result did not exceed the trigger level of 20 TUC specified by Order No. 01-071. None of the remaining TUC values exceeded 2.2 TUC.

- d. *Screening Phase Study.* The Discharger is required to conduct a chronic toxicity screening phase study, as described in the Appendix E-1 of the MRP (Attachment E), before the next permit reissuance.

7. Chlorine

The instantaneous maximum limitation for chlorine of 0.0 mg/L is retained by this Order. This limitation is required by the Basin Plan (Table 4-2).

D. Final Effluent Limitations

1. Following is a summary of the technology-based and WQBELs established by this Order for Discharge Point 001.

Table F-15. Summary of Technology-Based Effluent Limitations between May 1st and September 30th

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Oil and Grease	mg/L	10	---	20	---	---
pH	standard units	---	---	---	6.0	9.0
TSS	mg/L	20	30	---	---	---
CBOD ₅	mg/L	15	25	---	---	---
Chlorine, Total Residual	mg/L	---	---	---	---	0.0

Table F-16 Summary of Technology-Based Effluent Limitations between October 1st and April 30th

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Oil and Grease	mg/L	10	---	20	---	---
pH	standard units	---	---	---	6.0	9.0
TSS	mg/L	30	45	---	---	---
CBOD ₅	mg/L	25	40	---	---	---
Chlorine, Total Residual	mg/L	---	---	---	---	0.0

The Discharger shall also comply with the following effluent limitations.

- **CBOD₅ and TSS 85% Percent Removal:** The average monthly percent removal of CBOD and TSS shall not be less than 85 percent.
- **Fecal Coliform Bacteria:** The treated wastewater shall meet the following limits of bacteriological quality.
 - (1) The five day log mean fecal coliform density shall not exceed 200 MPN/100 ml; and
 - (2) The 90th percentile value of the last ten values shall not exceed 400 MPN/100 mL.
- **Enterococci Bacteria:** The monthly geometric mean enterococci bacteria density shall not exceed 35 MPN/100 mL.
- **Effluent Limitations for Toxic Pollutants**

Table F-17. Summary of Effluent Limitations for Toxic Pollutants ^(1,4)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Priority Pollutants						
Copper ⁽²⁾	µg/L	72	---	96	---	---
Mercury	µg/L	0.020	---	0.043	---	---
Nickel	µg/L	30	---	71	---	---
Cyanide	µg/L	12	---	20	---	---
Dioxin-TEQ ⁽³⁾	µg/L	1.4 x 10 ⁻⁸	---	2.8 x 10 ⁻⁸	---	---
Ammonia (total as N)	mg/L	66	---	120	---	---

- (1) a. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).
 - b. All metals limitations are expressed as total recoverable metal.
- (2) Alternate Effluent Limits for Copper:
 - a. If a copper SSO for the receiving water becomes legally effective, resulting in adjusted saltwater Criterion Continuous Concentration (CCC) of 2.5 µg/l and Criterion Maximum Concentration (CMC) of 3.9 µg/l as documented in the *North of Dumbarton Bridge Copper and Nickel Site-Specific Objective (SSO) Derivation (Clean Estuary Partnership March 2005b)*, upon its effective date, the following limitations shall supersede those copper limitations listed above.
MDEL of 72 µg/L, and AMEL of 54 µg/L.
 - b. If a different copper SSO for the receiving water is adopted, the alternate WQBELs based on the SSO will be determined after the SSO effective date.
- (3) The Discharger shall comply with the compliance schedule tasks and deadlines described in Section VI.C.7. Final limits for dioxin-TEQ will take effect on January 31, 2018.
- (4) A daily maximum or average monthly value for a given constituent shall be considered noncompliant with the effluent limitations only if it exceeds the effluent limitation and the Reporting Level for that constituent. As outlined in Section 2.4.5 of the SIP, the table below indicates the Minimum Level (ML) upon which the Reporting Level is based for compliance determination purposes. A Minimum Level is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

- **Acute Toxicity.** The Discharger shall comply with the following limitations for whole effluent, acute toxicity.

11 sample median: A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or less bioassay tests show less than 90 percent survival.

90th percentile: A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or less bioassay tests show less than 70 percent survival.

- **Mercury Mass Emission Limitation**

This Order retains the interim mercury mass-based effluent limitation of 0.15 kg/month included the previous order. This mass-based effluent limitation is intended to maintain the discharge at current loadings until a TMDL is established for San Francisco Bay. The final mercury effluent limitations will be based on the Discharger's WLA in the TMDL.

The inclusion of interim performance-based mass limits for bioaccumulative pollutants is consistent with the guidance described in Section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass load of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

2. Anti-Backsliding

This Order includes limitations for the following parameters that are the same or more stringent than those in Order No. 01-071:

- Oil and grease
- pH
- CBOD₅ and TSS
- Total residual chlorine
- 85 % removal requirement for CBOD₅ and TSS
- Fecal coliform bacteria
- Acute toxicity
- Nickel
- Mass emission limitation for mercury

This Order establishes final concentration-based limitations on the following parameters that were not limited by Order No. 01-071:

- Dioxin-TEQ
- Copper
- Mercury
- Cyanide
- Enterococci bacteria
- Ammonia

The establishment of new effluent limitations for dioxin-TEQ, copper, mercury, enterococci bacteria, ammonia, and cyanide effectively creates more stringent limitations than in Order No. 01-071. Because these final limitations are at least as stringent as those in Order No. 01-071, they meet applicable anti-backsliding requirements of the CWA. Order No. 01-071's effluent cyanide limit was an interim limit instead of a final limit. Therefore, the final limit for cyanide also meets applicable anti-backsliding requirements of the CWA.

Final limitations for the following parameters are not retained by this Order.

- Settleable solids
- Lead
- Zinc
- Dieldrin
- 4,4-DDE
- Turbidity

For the San Mateo WWTP, like other facilities achieving secondary levels of treatment or better, the Regional Water Board has determined that compliance with the requirements of 40 CFR 133 and of Table 4-2 of the Basin Plan will also assure removal of settleable solids and turbidity to acceptably low levels. These levels are below 0.1 ml/L/hr (30-day average) and 0.2 ml/L/hr (daily maximum) for settleable solids; and below 15 NTU (30-day average) and 30 NTU (daily maximum) for turbidity.

Order No. 01-071 included final WQBELs for nickel, lead, zinc, dieldrin, and 4-4-DDE. However, because the RPA showed that discharges from the San Mateo WWTP no longer demonstrate a reasonable potential to cause or contribute to exceedances of applicable WQC for lead, zinc, dieldrin, and 4-4-DDE, limitations from Order No. 01-071 are not retained and new limitations are not included in this Order for these pollutants.

E. Land Discharge Specifications

Not Applicable.

F. Reclamation Specifications

Not applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations (except for un-ionized ammonia) are retained from Order No. 01-071. They reflect applicable water quality standards from the Basin Plan. The un-ionized ammonia receiving water limit has been replaced by an ammonia effluent limit.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger are to:

- Document compliance with waste discharge requirements and prohibitions established by the Regional Water Board,

- Facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge,
- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and
- Prepare water and wastewater quality inventories.

The MRP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board's policies. The MRP also defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

A. Influent Monitoring

Influent monitoring requirements for CBOD₅ and TSS allow determination of compliance with this Order's 85 percent removal requirement. Influent monitoring requirements for cyanide and "selected pollutants" have not been retained except for pretreatment monitoring requirements (Attachment E, Table E-5).

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from Order No. 01-071. Changes in effluent monitoring are summarized as follows.

- Monitoring for settleable solids is no longer required, as the effluent limitation for this parameter has not been retained by this Order.
- The frequency of monitoring for chronic toxicity has been maintained at semiannually; however, the chronic toxicity monitoring provisions of this Order have been revised to comply with the Basin Plan. The Basin Plan requires a trigger value of a single-sample maximum of 10 TUc for dischargers that monitor semiannually, and accelerated monitoring consisting of monthly chronic toxicity monitoring if the trigger value is exceeded (Table 4-5).
- Routine effluent monitoring is required for those priority toxic pollutants for which effluent limitations are established by this Order - copper, nickel, mercury, cyanide, dioxin-TEQ, and ammonia. Monitoring for all other priority toxic pollutants must be conducted once a year in accordance with methods described in the Regional Water Board's August 6, 2001 Letter.

C Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required semi-annually in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Regional Monitoring Program

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043 directing the Executive Officer to implement the RMP for San Francisco Bay. Subsequent to a public hearing and various meetings, Regional Water Board staff requested major permit holders in this region, under authority of section 13267 of CWC, to report on the water quality of the estuary. These permit holders responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances. This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment, and biota of the estuary.

E. Other Monitoring Requirements

Not applicable.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which in accordance with 40 CFR §§122.41 and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in **Attachments D and H** of this Order.

B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (**Attachment E**), Standard Provisions and Self Monitoring Plan (SMP), Part A (**Attachment G**), of the Permit. This provision, based on 40 CFR 122.63, requires compliance with these documents. The Standard Provisions and SMP, Part A, are standard requirements in almost all NPDES permits issued by the Regional Water Board, including this Order. They contain definitions of terms, specify general sampling and analytical protocols, and set out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board's policies. The MRP contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

C. Special Provisions (Provision VI.C)**1. Reopener Provisions**

These provisions are based on 40 CFR 123. They allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

2. Special Studies and Additional Monitoring Requirements

- a. Blending Monitoring Study. This provision requires the Discharger to plan and implement a study to demonstrate that TSS is an appropriate indicator of compliance with other effluent limits during blending events.
- b. Effluent Characterization Study. This Order does not include effluent limitations for the selected constituents addressed in the August 6, 2001 Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001 Letter and as specified in the MRP of this Order. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in reasonable potential to cause or contribute to an excursion above the applicable WQO/WQC. This provision is based on the Basin Plan and the SIP.
- c. Ambient Background Receiving Water Study. This provision is based on the Basin Plan, the SIP, and the August 6, 2001 Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in the collaborative BACWA study.
- d. Optional Mass Offset Plan. This option is provided to encourage the Discharger to implement further aggressive reduction of mass loads to Lower San Francisco Bay. If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d) listed pollutants to the same receiving water body needs to be submitted for Board approval. The Regional Water Board will consider any proposed mass offset plan and amend this Order accordingly.
- e. Compliance Schedule for Dioxin-TEQ: This Order includes a ten-year compliance schedule for dioxin-TEQ. Order No. 01-071 required the Discharger to monitor its effluent for dioxin congeners and to report on the presence or absence of dioxins in its discharge. Although the effluent dioxin-TEQ concentrations reported by the Discharger are below the final WQBELs, the number of results (six) is not enough to provide statistical confidence, leaving significant uncertainty that the Discharger can comply. The compliance schedule provides the Discharger time to confirm their ability to comply with the final WQBELs through continued monitoring, and directs the Discharger to take additional steps to achieve compliance if continued monitoring shows dioxin-TEQ concentrations that exceed the final WQBELs.

3. Best Management Practices and Pollution Minimization Program

This provision is based on Chapter 4 of the Basin Plan and Chapter 2 of the SIP.

4. Construction, Operation, and Maintenance Specifications

- a. Wastewater Facilities, Review and Evaluation, Status Reports: This provision is based on Order No. 01-071 and the Basin Plan. See Section VI.C.4 of this Order for specific requirements.
- b. Operations and Maintenance Manual, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR §122, and Order No. 01-071. See Section VI.C.4 of this Order for specific requirements.
- c. Contingency Plan, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR §122, and Order No. 01-071. See Section VI.C.4 of this Order for specific requirements.

5. Special Provisions for Municipal Facilities (POTWs Only)

- a. Pretreatment Program. This provision is based on 40 CFR, Part 403 (General Pretreatment Regulations for Existing and New Sources of Pollution).
- b. Sludge Management Practices Requirements. This provision is based on the Basin Plan (Chapter 4) and 40 CFR Parts 257 and 503.
- c. No Feasible Alternatives and Implementation Schedule: This provision is based on 40 CFR 122.41(m). It requires that the Discharger reevaluate prior to the next permit reissuance that it has explored every feasible alternative to eliminate blending. See Fact Sheet Section IV.A.3 for more information.
- d. Sanitary Sewer Overflows and Sewer System Management Plan: This provision is to explain this Order's requirements as they relate to the Discharger's conveyance system, and to promote consistency with the State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Overflow and a related Monitoring and Reporting Program (Order 2006-0003-DWQ). See Section VI.C.5.d of this Order for specific requirements.

6. Corrective Measures to Minimize Blending Events:

This provision is based on 40 CFR 122.41(m). It requires that the Discharger implement feasible alternatives to reduce the need to blend during this permit cycle.

7. Dioxin-TEQ Compliance Schedule

- a. The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or the NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs and the NTR are based on the Basin Plan. Both the SIP and the Basin Plan

require the Discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule.

The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:

- Descriptions of diligent efforts the discharger has made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the Basin Plan. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in limitations that are more stringent.

- c. As previously described, the Discharger submitted an Infeasibility Study, and the Regional Water Board staff confirmed its assertions that immediate compliance with the dioxin-TEQ effluent limits is infeasible.
- d. A maximum compliance schedule is reasonable for dioxin-TEQ because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. In the Regional Water Board's view, it is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan (section 4.13), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology at the plant." Finally, because of the ubiquitous nature of the sources of dioxin-TEQ, this provision also allows the Discharger to address compliance with calculated WQBELs through other strategies, such as mass offsets.

During the compliance schedule periods, the Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met.

8. Action Plan for Cyanide

The proposed cyanide site-specific objectives, if approved, will require action plans for source control. Implementation of a similar action plan for cyanide at this time would ensure that any increase in cyanide limits would be consistent limits expected with the

site-specific objectives. Therefore, the antidegradation analysis prepared for the site-specific objectives could also apply to these limits, which would therefore comply with antidegradation policies (i.e., increasing the limits would not degrade the quality of the receiving water).

9. Action Plan for Copper

The copper SSO Basin Plan Amendment, if approved, will require action plans for source control. Implementation of an action plan for copper is necessary to ensure that any increase in copper limits would be consistent with antidegradation policies (i.e., increasing the limits would not degrade the quality of the receiving water).

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for San Mateo WWTP. As a step in the WDR adoption process, Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested organizations and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit written comments and recommendations. Notification was provided through the following: **San Mateo Times, August 31, 2007.**

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Officer at the Regional Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **September 13, 2007.**

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **November 1, 2007**

Time: **9:00 AM**

Location: **Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612**

Contact: **John Madigan, (510) 622-2405, email jmadigan@waterboards.ca.gov**

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/sanfranciscobay> where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to John Madigan at 510-622-2405 (e-mail at JMadigan@waterboards.ca.gov).

ATTACHMENT H - PRETREATMENT REQUIREMENTS**Pretreatment Program Provisions**

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR §403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 et seq.), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Regional Water Board's Executive Officer or the EPA. The EPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.
2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
3. The Discharger shall perform the pretreatment functions as required in 40 CFR §403 and amendments or modifications thereto including, but not limited to:
 - i) Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR §403.8(f)(1);
 - ii) Implement the programmatic functions as provided in 40 CFR §403.8(f)(2);
 - iii) Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR §403.8(f)(2)(vii);
 - iv) Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR §403.8(f)(3); and
 - v) Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR §§403.5 and 403.6, respectively.
4. The Discharger shall submit annually a report to the EPA Region 9, the State Water Board, and the Regional Water Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.
5. The Discharger shall submit semiannual pretreatment reports to the EPA Region 9, the State Water Board, and the Regional Water Board describing the status of its significant industrial users (SIUs). The report shall contain, but is not limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the

period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case-by-case basis subject to State Water Board and EPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.
7. The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case-by-case basis.

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31st of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

1) Cover Sheet

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR §403.12(j)).

2) Introduction

The Introduction shall include any pertinent background information related to the Discharger, the POTW and/or the industrial user base of the area. In addition, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement Order (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Water Board or U.S. EPA. A more specific discussion shall be included in the section entitled, "Program Changes."

3) Definitions

This section shall contain a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program.

4) Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

- a) a description of what occurred;
- b) a description of what was done to identify the source;

- c) the name and address of the industrial user (IU) responsible
- d) the reason(s) why the incident occurred;
- e) a description of the corrective actions taken; and
- f) an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

5) **Influent, Effluent and Sludge Monitoring Results**

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6) **Inspection and Sampling Program**

This section shall contain at a minimum, but is not limited to, the following information:

- a) Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
- b) Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7) **Enforcement Procedures**

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Water Board shall also be given.

8) **Federal Categories**

This section shall contain a list of all of the federal categories that apply to the Discharger. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9) Local Standards

This section shall include a table presenting the local limits.

10) Updated List of Regulated SIUs

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and a brief description of the individual SIU's type of business. The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11) Compliance Activities

- a) **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:
 - (1) the number of inspections and sampling events conducted for each SIU;
 - (2) the quarters in which these activities were conducted; and
 - (3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:
 - (a) in consistent compliance;
 - (b) in inconsistent compliance;
 - (c) in significant noncompliance;
 - (d) on a compliance schedule to achieve compliance, (include the date final compliance is required);
 - (e) not in compliance and not on a compliance schedule;
 - (f) compliance status unknown, and why not.
- b) **Enforcement Summary:** This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:
 - (1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
 - (2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or

local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.

- (3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.
- (6) Order to restrict/suspend discharge to the POTW.
- (7) Order to disconnect the discharge from entering the POTW.

12) Baseline Monitoring Report Update

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR §403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

13) Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to, legal authority, local limits, monitoring/ inspection program and frequency, enforcement protocol, program's administrative structure, staffing level, resource requirements and funding mechanism. If the manager of the pretreatment program has changed, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

14) Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, by either the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses, and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

15) Public Participation Summary

This section shall include a copy of the public notice as required in 40 CFR §403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

16) Sludge Storage and Disposal Practice

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

17) PCS Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) Other Subjects.

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at U.S. EPA, the State Water Board, and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX B: REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

The semiannual pretreatment reports are due on July 31st (for pretreatment program activities conducted from January through June) and January 31st (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Regional Water Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

1) **Influent, Effluent and Sludge Monitoring**

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

2) **Industrial User Compliance Status**

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

- a. Indicate if the SIU is subject to Federal categorical standards; if so, specify the category including the subpart that applies.
- b. For SIUs subject to Federal Categorical Standards, indicate if the violation is of a categorical or local standard.
- c. Indicate the compliance status of the SIU for the two quarters of the reporting period.
- d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits

and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

3) **POTW's Compliance with Pretreatment Program Requirements**

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

- a. Date of latest PCA, PCI or PPE and report.
- b. Date of the Discharger's response.
- c. List of unresolved issues.
- d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR §403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at U.S. EPA, the State Water Resources Control Board, and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX C REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Table E-6 of the Monitoring and Reporting Program.

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Tables E-3 and E-4 of the MRP. Any subsequent modifications of the requirements specified in Tables E-3 and E-4 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Tables E-3 and E-4 and the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required test methods listed in Table E-1 of the MRP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and effluent sampling locations shall be the same as those sites specified in the Self-Monitoring Program.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. A grab sample shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR §136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level, then the Discharger shall conduct the analysis using a commercially available method with reasonably achievable detections limits that has been approved by the U.S. EPA or by the Regional Water Board's Executive Officer.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

- A. Sampling Procedures – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times. Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.

- B. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.
- C. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.
- D. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- E. A tabulation of the test results shall be provided.
- F. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

2. Sludge Monitoring

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

- A. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or
- B. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or
- C. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The U.S. EPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The U.S. EPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Water Board approval.

- A. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.
- B. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- C. Test Results – Tabulate the test results and include the percent solids.
- D. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent, or sludge monitoring data for non-priority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through, or adversely impacting sludge quality.

Exhibit B

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

CEASE AND DESIST ORDER NO. R2-2007-0076

**REQUIRING THE CITY OF SAN MATEO
TO CEASE AND DESIST DISCHARGING PARTIALLY-TREATED WASTEWATER
TO WATERS OF THE STATE**

WHEREAS the California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter "Regional Water Board"), finds that:

1. The City of San Mateo (hereinafter "Discharger") owns and operates a wastewater treatment plant (WWTP), located at 2050 Detroit Drive, San Mateo, CA, San Mateo County. The Plant treats domestic wastewater from the City of San Mateo, City of Foster City, City of Hillsborough, City of Belmont, and unincorporated San Mateo County. It has a dry weather design capacity of 15.7 million gallons per day (MGD).
2. The wastewater discharge has been regulated by waste discharge requirements in Order No. 01-071 (NPDES Permit No. CA0037541).
3. Concurrent with the adoption of this Cease and Desist Order, the Regional Water Board adopted Order No. R2-2007-0075 (hereinafter "Permit"), reissuing waste discharge requirements for the Discharger. The Permit contains prohibitions, limitations, and provisions regulating the discharge. The limitations include those listed in Table 1 below, among others.

Table 1: Permit Effluent Limits

Parameter	Final Effluent Limits in Permit		Monitoring Station
	Average Monthly Effluent Limit (µg/L)	Maximum Daily Effluent Limit (µg/L)	
Mercury	0.020	0.043	EFF-001

4. The Discharger submitted an infeasibility study demonstrating that it cannot comply with the effluent limits listed in Table 1. As stated in the Permit findings, the Regional Water Board concurs with the Discharger because the 95th and 99th percentiles of the effluent data for mercury exceed both the average monthly and daily maximum limits for mercury.
5. Water Code § 13301 authorizes the Regional Water Board to issue a Cease and Desist Order when it finds that a waste discharge is taking place, or threatening to take place, in violation of Regional Water Board requirements.
6. Because the Discharger will violate or threatens to violate required effluent limits, this Order

is necessary to ensure that the Discharger achieves compliance. This Order establishes time schedules for the Discharger to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.

7. The time schedules in this Order are parameter-specific and intended to be as short as possible. They account for the considerable uncertainty in determining effective measures (e.g., pollution prevention and treatment plant upgrades) necessary to achieve compliance. This Order allows some time to first explore source control measures before requiring further actions, such as treatment plant upgrades, which are likely to be much more costly. The time schedules are based on reasonably expected times needed to implement source identification and upstream source control, evaluate success, identify on-site treatment alternatives if necessary, test and select from among alternatives, and construct plant upgrades. The Regional Water Board may wish to revisit these assumptions as more information becomes available.
8. As part of the time schedules to achieve compliance, this Order requires the Discharger to comply with interim effluent limits. These interim limits are intended to ensure that the Discharger maintains at least its existing performance while completing all tasks required during the time schedules. The interim limits are based on past performance. The interim limits represent the 99.87th percentile of actual measured discharge concentrations (three standard deviations from the mean).
9. This Order is an enforcement action and, as such, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code § 21000 et seq.) in accordance with 14 CCR § 15321.
10. The Regional Water Board notified the Discharger and interested persons of its intent to consider adoption of this Cease and Desist Order, and provided an opportunity to submit written comments and appear at a public hearing. The Regional Water Board, in a public hearing, heard and considered all comments.

IT IS HEREBY ORDERED, in accordance with Water Code § 13301, that the Discharger shall cease and desist from discharging and threatening to discharge wastes in violation of its Permit by complying with the following provisions:

1. Prescribed Actions. The Discharger shall comply with the required actions in Table 2 in accordance with the time schedules provided therein to comply with all effluent limits contained in the Permit. All deliverables listed in Table 2 shall be acceptable to the Executive Officer, who will review them for adequacy and compliance with the Table 2 requirements. The Discharger shall further implement all actions set forth in each deliverable, unless the Executive Officer finds the deliverable to be unacceptable.
2. Exceptions. The following exception applies to the parameter-specific time schedule and prescribed actions in Table 2.

- a. Mercury. The mercury-related time schedules and prescribed actions shall cease to be in effect upon the effective date of a permit* that supersedes the mercury limits in the Permit.
3. Reporting Delays. If the Discharger is delayed, interrupted, or prevented from meeting one or more of the time schedules in Table 3 due to circumstances beyond its reasonable control, the Discharger shall promptly notify the Executive Officer, provide the reasons and justification for the delay, and propose time schedules for resolving the delay.
4. Consequences of Non-Compliance. If the Discharger fails to comply with the provisions of this Order, the Executive Officer is authorized to take further enforcement action or to request the Attorney General to take appropriate actions against the Discharger in accordance with Water Code §§ 13331, 13350, 13385, and 13386. Such actions may include injunctive and civil remedies, if appropriate, or the issuance of an Administrative Civil Liability Complaint for Regional Water Board consideration.
5. Effective Date. This Order shall be effective on the effective date of the Permit.

* In March 2007, Regional Water Board staff publicly noticed a draft permit that could supersede existing mercury requirements and implement the wasteload allocations for municipal and industrial wastewater discharges identified in the San Francisco Bay Mercury TMDL that the Regional Water Board adopted in August 2006.

Table 2: Time Schedules and Prescribed Actions

Action	Deadline
	Mercury
a. Comply with the following interim effluent limit at Monitoring Station E-001: <i>Mercury</i> : Maximum daily effluent limit = 0.065 µg/L	Upon the effective date of this Order
b. If, by February 28, 2008, discharge data continue to show that the discharge is out of compliance (as defined in Section 2.4.5 of the State Implementation Plan) with the permit effluent limits, submit a plan for identifying all mercury sources to the discharge. Examples of potential mercury sources include dental offices, laboratories, medical facilities, fluorescent light tubes, thermometers, and electrical switches. The plan shall, at a minimum, include sampling influent waste streams to identify and quantify pollutant sources.	September 1, 2008
c. Implement the plan developed in action "b" within 30 days of the deadline for action "b," and submit by the deadline for this action (action "c") a report that contains an inventory of the pollutant sources.	January 1, 2009
d. Submit a report documenting development and initial implementation of a program to reduce and prevent the pollutants of concern in the discharge. The program shall consist, at a minimum, of the following elements: i. Maintain a list of sources of pollutants of concern. ii. Investigate each source to assess the need to include it in the program. iii. Identify and implement targeted actions to reduce or eliminate discharges from each source in the program. iv. Develop and distribute, as appropriate, educational materials regarding the need to prevent sources to the sewer system.	March 1, 2009
e. Continue to implement the program described in action "d" and submit annual status reports that evaluate its effectiveness and summarize planned changes. Report whether the program has successfully brought the discharge into compliance with the effluent limits in the Permit. If not, identify and implement additional measures to further reduce discharges.	Annually each February 28 in Best Management Practices and Pollutant Minimization Report required by Permit Provision VI.C.3
f. If by April 28, 2011 , discharge data continue to show that the discharge is out of compliance (as defined in Section 2.4.5 of the State Implementation Plan) with the Permit effluent limits, submit a report, by the deadline for this action, identifying more aggressive actions to ensure compliance. These actions shall include, but not be limited to, reviewing options for pretreatment and upgrades to the treatment plant. The report shall identify an implementation schedule for investigating these options, selecting a preferred option, and implementing the chosen option. At a minimum, the report shall plan for the following activities: i. Bench scale testing or pilot scale testing or both ii. Development of preliminary design specifications iii. Development of final design specifications	August 1, 2011

Exhibit C



California Regional Water Quality Control Board

San Francisco Bay Region



Linda S. Adams
Secretary for
Environmental Protection

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Arnold Schwarzenegger
Governor

ORDER NO. R2-2007-008
NPDES NO. CA0037648

The following Discharger is subject to waste discharge requirements as set forth in this Order.

Table 1. Discharger Information

Discharger	Central Contra Costa Sanitary District
Name of Facility	Central Contra Costa Sanitary District Collection System and Wastewater Treatment Plant
Facility Address	5019 Imhoff Place
	Martinez, CA 94553
	Contra Costa County

The discharge by the Operator from the discharge point identified below is subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	POTW Effluent	38°, 2', 44" N	122°, 5', 55" W	Suisun Bay

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	January 23, 2007
This Order shall become effective on:	April 1, 2007
This Order shall expire on:	March 31, 2012
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that this Order supersedes Order No. 01-068 except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 23, 2007.

Bruce H. Wolfe, Executive Officer

- (4) *Immediate Compliance Infeasible.* The Discharger's Feasibility Study asserts the Discharger cannot immediately comply with final concentration-based WQBELs for dioxin-TEQ. The Regional Water Board concurs with the Discharger's assertion of infeasibility to comply, as effluent concentrations of dioxin-TEQ measured during the term of the previous Order exceed the WQBEL (above).
- (5) This Order establishes an interim mass limitation for 2,3,7,8-TCDD Equivalent from the previous permit. There is insufficient data from more recent monitoring to calculate a different performance based limit.
- (6) *Term of Interim Limits.* The interim limits are effective until June 30, 2011, as provided in B.5 of the previous permit. This was, and still is, based on the compliance schedule provision of the Basin Plan (Chapter 4, page 4-14). The Basin Plan provides for up to ten years to comply. This ten-year period started on the effective date of the previous permit which was July 1, 2001.
- (7) *General sources of Dioxins and Furans.* The Regional Water Board recognizes that the primary source of dioxins and furans in the Bay Area is air emissions from combustion sources. Based on staff report "Dioxin in Bay Environment – A Review of the Environmental Concerns, Regulatory History, Current Status, and Possible Regulatory Options" dated February 1998, and the USEPA report "Status of Dioxin Reassessment and Policy Response" of 2000. Dioxins and furans in waste water are mainly attributed to domestic waste and storm water runoff. The latter is especially significant as the storm water carries particles on which the deposited pollutants have become attached. The Discharger operates a sludge incinerator which may also be a source of dioxin-TEQ to its discharge. Despite this, the main source of dioxins and furans in the domestic waste stream is beyond the Discharger's control as it already operates a well-maintained secondary treatment plant (100% compliance past 5 years). Because of this, dioxins and furans concentrations cannot be further reduced without significant upgrades to the facility to advanced treatment which could be overly burdensome and would not be cost effective for the benefits received. Therefore, other strategies should be explored to address the impairment by dioxin-TEQ. These strategies include potential mass offsets which are included in provisions relating to compliance schedule interim requirements for dioxin-TEQ at VI.C.2.d and VI.C.4.
- (8) *Anti-backsliding/Antidegradation.* Anti-backsliding and antidegradation requirements are satisfied, as the previous Order did not include concentration-based limitations for dioxin-TEQ, and the mass-based limit from the previous permit are retained.

f. Acrylonitrile

- (1) *Acrylonitrile WQC.* The most stringent applicable water quality criterion for acrylonitrile is 0.66 µg/L, established by the CTR for protection of human health.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

RESPONSE TO WRITTEN COMMENTS

ON THE REISSUANCE OF WASTE DISCHARGE REQUIREMENTS FOR:

Central Contra Costa County Sanitary District
Wastewater Treatment Plant
5019 Imhoff Place, Martinez
Contra Costa County
NPDES Permit No. CA0037648

The Tentative Order for reissuance of the Central Contra Costa Sanitary District Waste Water Treatment Plant NPDES Permit No. CA0038776 was made available for public comment for 30 days from November 30 to December 30, 2006. The Water Board received 22 pages of comments on this item from the Central Contra Costa Sanitary District, a five page letter from the Bay Area Clean Water Agencies, and a one page letter from U.S. EPA that referred to this facility as well as other facilities.

Central Contra Costa County Sanitary District, December 29, 2006

Mr. Douglas J. Craig
Director of Plant Operations

United States Environmental Protection Agency (USEPA) – December 13, 2006

Mr. Douglas E. Eberhardt, Chief
CWA Standards and Permits Office

Bay Area Clean Water Agencies (BACWA), December 29, 2006

Ms. Michele Pla
BACWA Executive Director

Comments were both editorial and substantive. Only substantive comments, those that would change the content of the Tentative Order, are addressed here. Generally, with exceptions noted, editorial comments were incorporated into the Revised Tentative Order.

Note: The format of this staff response begins with summaries of the party's comments, followed with a Water Board staff response to each comment. Interested persons should refer to the original letters to ascertain the full substance and context of each comment.

Comment 3: Final Limits for Dioxin-TEQ

The District cites issues raised by the South Bay Districts Authority (SBSA) in its comments on its permit (Agenda Item 9).

Response: Responses to comments on the SBSA permit are included in the packet for that permit, see the response to SBSA Comment 1, and are incorporated here by reference.

Comment 4: Final Limits for Dioxin-TEQ

The District asserts that, in the case of Golden Eagle Refinery (Tosco) discharges to Suisun Bay, the State Board and Court of Appeal determined that numeric limits are inappropriate for dioxin discharges because numeric limits are infeasible. The District asserts, therefore, that its dioxin-TEQ limit should also be narrative.

Response: In the decision concerning the Golden Eagle Refinery, the court found that limits could be narrative, but it did not preclude numeric limits. The fact that the Golden Eagle Refinery permit does not include a numeric effluent limit for dioxin-TEQ does not prevent the imposition of a numeric limit at this time. In fact the District has little to gain from a narrative limit. The refinery's narrative limit was essentially "no net loading". To meet this limit the refinery would need to seek mass off-sets for its entire dioxin-TEQ discharge. The proposed numeric limit for the District is likely to result in a similar outcome as regards mass offsets but for only the quantity of dioxin-TEQ above the numeric limit.

Comment 5: Final Limits for Dioxin-TEQ

The District notes that the dioxin-TEQ limit is based on the Basin Plan's narrative bioaccumulation objective, and that that objective relates to "controllable water quality factors" only. The District argues that, since it cannot control dioxins, dioxins cannot be a controllable factor, and therefore cannot cause violations of the bioaccumulation objective. Having argued that dioxins are uncontrollable, the District then argues that the Basin Plan requires a detailed case-by-case cost-benefit analysis to determine the extent to which further regulation is reasonable.

Response: U.S.EPA resolved the issue of whether dioxins are controllable. In placing San Francisco Bay on the 303(d) list of impaired waters due to dioxin concentrations in fish and other aquatic organisms, it interpreted the Basin Plan's narrative bioaccumulation objective such that dioxins are considered controllable. The Basin Plan states "Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State and that may be reasonably controlled." Dioxins are primarily a result of human activity and their discharge to waters can be controlled by removing solids from wastewater (dioxins are hydrophobic and bind to particles). Additional dioxin removal could result from plant upgrades. This could be burdensome and may not be cost effective at this

time; however, such actions could be necessary in the future. We disagree with the District's interpretation of the Basin Plan concerning when a case-by-case cost-benefit analysis is necessary. No detailed analysis is required to determine how best to control "uncontrollable" pollutants. Such pollutants are, after all, uncontrollable. However, when a water quality objective is exceeded due to a combination of controllable and uncontrollable factors, a case-by-case analysis may be necessary. This is not the case here because dioxins and furans are controllable in the Basin Plan context.

Comment 6: Final Limits for Dioxin-TEQ

The District claims that the Tentative Order (II. Findings, G, page 6) does not clearly describe which of the three options listed in 40CFR 122.44(d)(1)(vi) was used to translate the Basin Plan's narrative bioaccumulation objective into a numeric dioxin TEQ limit.

Response: The Fact Sheet (page F-31) clearly states how the narrative objective was translated into a numeric limit. We established the effluent limit based on U.S. EPA's criteria for 2,3,7,8-TCDD (as adopted into the CTR) and other pertinent information (e.g., information about the toxic equivalence of other dioxin congeners). This approach is consistent with both 40 CFR § 122.44(d)(1)(vi)(A) and 40 CFR § 122.44(d)(1)(vi)(B). It is also consistent with our approach upheld by the State Water Board in the Napa, East Bay Municipal Utility District, Chevron and Tosco Orders (WQ 2001-16, 2002-0012, 2002-0011 and 2001-06).

Comment 7: Final Limits for Dioxin-TEQ

The District asserts that since no numeric objectives exist for dioxin-TEQ, federal law does not require numeric effluent limits. The District then asserts that adoption of numeric limits is allowed under state law, but requires an analysis of economics and other factors pursuant to Water Code § 13263 and § 13241. The District then cites Water Code § 13000, which calls for the highest level of water quality that is "reasonable," thereby implying that setting a numeric dioxin-TEQ limit is unreasonable.

Response: We believe numeric limits for dioxin-TEQ are necessary. Federal regulations at 40 CCR § 122.44(d)(1)(i) require effluent limitations for all pollutants with reasonable potential to cause an excursion above any state water quality standard, including narrative objectives. State Water Code § 13263 instructs the Water Board to place requirements on discharges as necessary to implement the Basin Plan, taking into consideration beneficial uses and applicable water quality objectives. Therefore, state law authorizes numeric limits too. Water Code § 13241 requires the Water Board to consider various factors in establishing water quality objectives, but this law does not apply in this case because we are not establishing any new water quality objectives. The effluent limit is based on an existing water quality objective - the narrative bioaccumulation objective. We contend that our approach in setting the numeric dioxin-TEQ limit is a reasonable means of implementing the Basin Plan bioaccumulation objective, and that the limit is consistent with state and federal laws and regulations.